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Edited by HENRY C. PEARSON—Offices, No. 150 Nassau Street, NEW YORK.

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MARCH 1, 1906.

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THE QUESTION OF RUBBER YIELDS.

A CORRESPONDENT this month challenges certain statements regarding a large yield reported from a few cultivated "Pará rubber" trees in Ceylon, contributed to our January issue, as being incredible. The Editor of this Journal is unable to offer any personal testimony in the case, but the statement referred to was accepted and paid for and published in utter good faith—all the more because the same facts, in one form or another, have become common property in the Far East, where the means exist for readily exposing any canard quite as much as in any other region known to us. In the daily and other journals of Ceylon and the Malay States the facts in regard to rubber culture are regularly and more thoroughly discussed than is true of any other form of material development to which newspapers anywhere else on earth devote attention.

But the question is not whether a few trees on a certain plantation actually did yield an unprecedentedly large amount of rubber, though that yield has not, we believe, been disputed by any competent authority. What is more to the point is the suggestion made in a Ceylon paper that an exceptionally large yield may be produced by a few trees, under specially favorable circumstances, as a result of extra care, without establishing a new standard of average yield for all rubber trees, everywhere. What was sought to be illustrated by our Ceylon contributor was that under certain new methods of treatment a larger yield of rubber was attained than from the same or similar trees under the best practice before known. And this we considered proper matter for publication, with a view to encouraging rubber planters generally to devote their energies to continued experimenting in an effort to get better and better results from their labor, through the continual employment of new means.

We print the communication of Mr. Waldron, with his computation of what the ultimate yield of Ceylon rubber would be, on the basis of the large yield we reported in January, with the comment that nobody, even in Ceylon, has expressed the idea that such a yield can be obtained in general practice. But even if it could be, in a given country, with a given species, it does not follow that like results would be necessarily possible everywhere, and with every species. Our own idea is that the rubber planter should figure out the *minimum* yield which would afford a profitable return from his capital, and whatever he can realize above this is so much more than the gains of the average man. There is no reason why miraculous returns from rubber should be expected, more than from any other field of investment.

Mr. Waldron has begun to ship rubber from his plantation in Nicaragua, and we feel that he has reason to be congratulated upon his initial results. And a few planters in Mexico are beginning to realize the fruition of their work, without reason, as we view it, to be dis-

appointed. Still, they are at the very beginning, if we look upon the new interest as something which is to last as long as the world needs rubber.

No doubt Mr. Waldron's plantation, under his intelligent supervision, will before many years reveal many improvements in practice, which will afford financial returns equal to his largest expectations; at least we hope so, and the general result will be furthered by the co-operation of equally enterprising planters in Mexico, in the Far East, and no doubt in the Philippines and in Africa. But the least of all things to be feared is the possibility of over-production of rubber—at least during the lifetime of those who are now actively interested in this field.

THE PEACE POLICY OF THE U. S. R.

TIME was when the United States Rubber Co. was at war with its neighbors and apparently neither cared to make money for itself nor to allow others in the same line to do so. With the advent of Colonel Samuel P. Colt as president, however, there came a radical change. Prices went up, "third grade" goods were almost eliminated, and while the great company fought just as hard for trade, it was a fair, open, friendly fight. A great company or so-called trust, is always suspected by individual concerns in the same line and its friendliness viewed with distrust, but it should after all be sized up on its record. The record of the United States Rubber Co. for the past few years has been a friendly attitude toward all big and little, a policy of selling goods at a fair profit, and the keeping up of the quality of goods. Both the public and the independent manufacturer have profited by this policy and it is only fair that it should be freely acknowledged.

THE RUBBER PLANTING INTEREST occupies a very considerable portion of our space this month, and we feel that it is justified. Not only London, but New York, Antwerp, and Hamburg have become markets for plantation rubber, on a commercial scale, and in no case is the result discouraging to the planting interest. With regard to New York, it is worthy of note that a leading rubber importing house—the house which figures second in exports of "wild" rubber from the Amazon valley—appears in this month's news as largely interested in the most notable plantation in the Malay States. And an important rubber manufacturing company here is in the forefront in promoting rubber production under cultivation on this side of the globe.

THE NEW GERMAN TARIFF, due to go into effect on this date, it now appears, will not discriminate against the United States—as was at one time reported—at least for another year. Meanwhile there may be an opportunity for such interchange of views between the two countries as will permanently remove the possibility of a "tariff war." But so far as the rubber trade is concerned, it is not clear why either country should be dissatisfied with existing conditions. That is to say, the constantly increasing sales of American rubber goods in Germany appears to be about equally offset by American imports of other classes of rubber goods from the *Faderland*.

PROGRESS IN THE RUBBER SHOE TRADE is shown by the way in which it is adapting itself to a condition of less dependence upon snow. Time was when the trade depended largely upon the sale of heavy boots, for which the absence of snow destroyed the demand. Nowadays millions of light weight shoes are sold, of a type desirable even for an ordinary rainstorm. And doubtless in time we shall have waterproof footwear so delicate that at least every lady or child will consider a pair indispensable even in summer, every time the weather predictions indicate a shower.

THE EXPULSION OF YELLOW FEVER from Havana (Cuba), making it the most healthful of tropical cities, and what appears to be the success of sanitary science in the Isthmus Canal zone, means much for the future of the rubber business. We have before expressed the opinion that the Amazon valley to-day is not more deadly for white men than the now populous and prosperous Mississippi valley was in the early days of the United States. And what is science good for, if it does not enable intelligent men to live wherever business calls them, even if that business is gathering rubber in tropical forests?

WE ARE GLAD TO PRINT THE NEWS, which comes to us from time to time of rubber associations from different parts of the country, even if each is confined to a comparatively small circle. No trade can fail to benefit from a proper co-operation among its members, and it may be that in such associations as that which exists on the Pacific coast, for example, may be found the seeds of what will ultimately become a National association, based upon principles mutually beneficial to the whole trade in the States.

OUR ABLE CONTEMPORARY, the New York *Evening Mail*, quotes with ill concealed doubt a prediction credited to THE INDIA RUBBER WORLD—which, by the way, we fail to recognize as our own—that rubber will get to be as valuable as gold. Perhaps the *Evening Mail* will not object to answering the question whether rubber is not already "as valuable as gold?" It all depends upon the point of view, you know.

WHAT WOULD CHARLES GOODYEAR THINK, after having worried himself for so many years about a single rubber patent, could he appear on the scene now and see hundreds of new rubber patents every year, and many of them more remunerative than the one to which he devoted his life?

OUR SALUTATIONS to the New England Rubber Club, for its success in so long steering away from the shoals of "price regulation," on which so many associations of rubber men have been wrecked.

THE GAMBLING IN RUBBER COMPANY SHARES in London bears about as much relation to legitimate rubber planting as betting on horse races does to the world's practical use of the horse.

IF AMERICANS CANNOT GROW RUBBER in the Philippines, will it be an admission that they are less capable than their British cousins in developing the possibilities of their tropical possessions?

A NEW RUBBER BELT AND ITS MANUFACTURE.

EVER since rubber came into use as a material for machinery belting, the efforts of manufacturers have been directed toward the discovery of some means of counteracting its one objectionable quality—the tendency to stretch. This tendency has been overcome to some extent by using a closely woven fabric as a sort of interlining. Although the fabric strengthened the belt and reduced the tendency to “give”, the result from its use has not been wholly satisfactory. One objection to the rubber belting has been the liability of the layers of rubber and cloth to separate. Mr. William R. Smith, of Buffalo, New York, has invented a belt in which he has reversed the relative importance of the rubber and fabric. The gripping action of the rubber on the pulley is retained, but the major portion of the strength and flexibility comes from the fabric.

It is claimed for the Smith belting that the rubber protects and preserves the fabric, thus adding greatly to the strength of the belt by increasing the cohesion of the fibers. The fabric used differs from that used in the older types of rubber belting, in that it is much coarser in mesh. It is not disposed in layers, but is a continuous multiple ply woven fabric. It is stretched and dried in the making, thus excluding all moisture, and while in this condition it is treated with a rubber composition that is forced into all the pores of the cloth. A more thorough penetration of the rubber into the fabric is assured by the fact that the pores of the latter are larger than in that formerly used, and also by the fabric being absolutely devoid of moisture. By this method the rubber is left soft and adhesive, thereby improving the frictional hold on the pulley.

Mr. Smith has not only invented a new rubber belting, but he has also devised and patented the machine to make it. It comprises a series of adjustable steam heated rolls between which the solid woven or knitted multiple ply cotton webbing is run. The rolls are positively driven by gears, worm wheels and worms from a single shaft running along the side of the machine. The sets of rolls thoroughly dry and take the stretch out of the webbing, each succeeding set of rolls having greater surface velocity than the preceding set and a corresponding increase in temperature.

The webbing is thus prepared for receiving the liquid rubber composition which is fed upon it from steam heated kettles or tanks as it passes through the center rolls. These are called the filler rolls and are placed side by side instead of one above the other so as to form a shallow trough between each pair, allowing the liquid composition to be applied to both sides of the fabric. The ends of the trough are formed by flanges on one of the rolls in each of the sets, which run in corresponding grooves in the mating rolls. In each set of the filler rolls, the speed is still further increased to keep the belt stretched throughout its course through the machine. The rolls are built up of rings so that it is possible to change the distance between the flanges which form the ends of the troughs to accommodate various widths of belt. The thickness of the belt is determined by the distance between the rolls of each set, which is adjustable.

After passing through two sets of filler rolls and being thoroughly saturated and coated with the liquid rubber, the belt passes between the heated rubbing plates which have opposed reciprocating motions and serve to further force the filling composition into the fabric as well as to smooth and burnish the surface. The plates are actuated by slotted leaves pivoted between the planes of the plates and driven at their lower ends by eccentrics. In going through the rubbing plates the rubber in the fabric is sufficiently vulcanized without destroying its pliability and adhesive quality.

The webbing is drawn into the machine from a reel which is provided near one end with a flange to guide one edge of the roll. Its rotation is retarded by a friction brake, the tension of which may be regulated. The completed belt as it is delivered from the machine passes over a guide roll and is coiled upon a winding reel which is provided with a variable speed drive to decrease the speed of the rotation as the belt accumulates on the reel. A disk on the side of the reel guides the belt on its inner face and is driven on its outer face by a friction roller which is feathered on its driving shaft so that its distance from the center of the disk may be varied by a rock arm extending down to the floor, to which is connected a similar arm that bears yieldingly against the

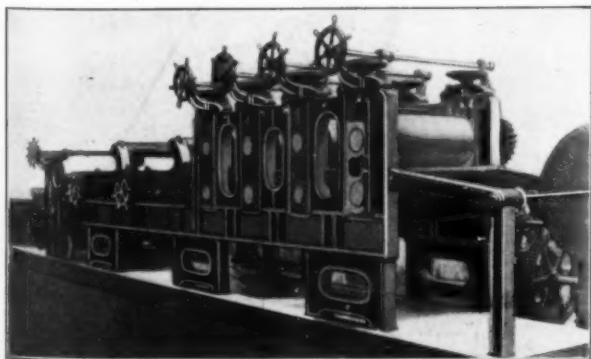


Fig. 1.—View from the Working Side of the Smith Fabric Treating Machine.

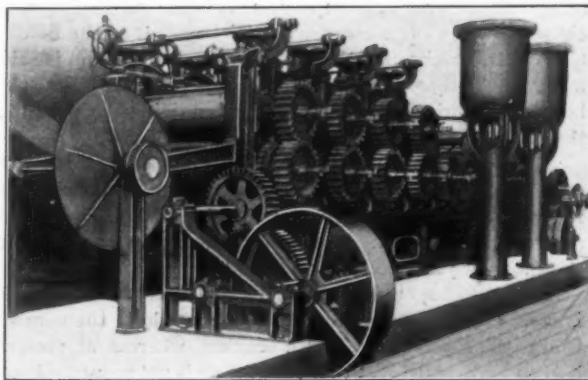


Fig. 2.—Rear View of the Machine as it Appears in the Buffalo Weaving and Belt Co.'s Works.

THE NEW RUBBER BELT MAKING MACHINE.

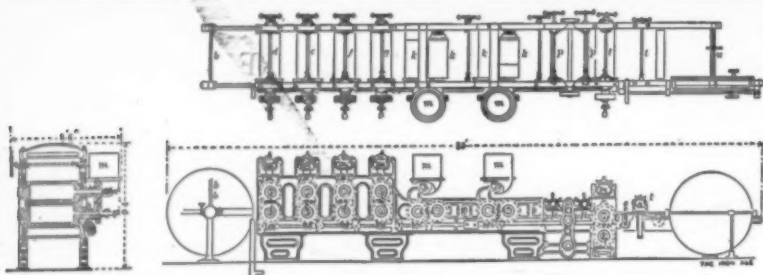


Fig. 3.—Elevations and Front View of the Smith Fabric Treating Machine.

roll of belting. As the coil increases in diameter the rock arm is deflected, causing the friction driving wheel to move toward the rim of the disk of the reel. As the driving roller runs at constant speed, the speed of the reel decreases in proper proportion to maintain uniform tension on the belt.

There is no doubt that this process produces a belting of great tensile strength, durability, adhesiveness, and frictional power upon the pulley, and one that will not stretch or shrink and is practically impervious to the action of steam, salt water, hot water or acids. The use of multiple ply webbing precludes the possibility of blistering or separating, and the belt is not affected by atmospheric conditions. The Smith machines, the patents for which have been sold to the Buffalo Weaving and Belting Co., can be adjusted to make belting of any desired thickness and of any width up to 72 inches. The machine is 50 feet in length and weighs about 90 tons.

Substantially the same process as that herein described has been employed by Mr. Smith in the manufacture of hose. For this, however, different machinery is required. Mr. Smith has invented and patented a machine for treating tubular fabrics. This patent has been sold to the Hewitt Rubber Co., of Buffalo, New York. The cuts used in illustrating this article have been reproduced from *The Iron Age*, through the courtesy of its editors.

A MACHINE FOR VARNISHING RUBBER SHOES.

RUBBER shoe makers who have good memories can recall the time when all of the varnishing was done by hand with brushes, a vast improvement over this was the dripping trough which so thoroughly displaced the brush; an improvement over this improvement is the varnishing machine shown in the accompanying picture. It is the invention of Mr. Erickson of Naugatuck, Connecticut, and is said to have been thoroughly tested out in one of the great rubber shoe factories in that town. In describing the machine the inventor says:

"The important thing about the machine is that it takes only a few hands to run it. Four men running it can do as much as ten men varnishing by hand per day, so that it saves six men's work. It therefore saves \$9.00 per day or \$2808.00 per year.

All of the shoes thus varnished look better, as the varnish is more evenly put on, because in the machine the varnish is always properly mixed with benzine, whereas at present it is an undisputed fact that the mixing is not properly done, as can be seen when the shoes are cured.

When shoes are dipped by hand the varnish clots at times on the toe as it runs off. This is done away with.

The machine is cheap, simple and easily kept, no expensive changes are required. Any one can run it if he attends to his work. It requires only that the bar be straight and shoes on bar of same size, which is an advantage as the shoes are all assorted at the conclusion and perhaps nowhere in a factory is so much time killed as in dumping the shoes.

TOLD IN HAMBURG.

A STORY is told in Hamburg, and also in London, which seems to please both of the parties interested, hence its repetition here. It happened that, not long ago, Alfred Calmon, of the former city, and Mr. Bell, a man most prominent in asbestos in the United Kingdom, were in several business deals together, and each had conceived a very hearty respect for the other's ability. Mr. Bell, in visiting Hamburg, was entertained handsomely by Mr. Calmon, dined at the best restaurants, entertained at the latter's home, shown over the beautiful city, and finally taken to the Calmon asbestos factory. Before entering the door Mr. Bell halted, and seriously and politely said:

"Mr. Calmon, would it be possible for you to furnish me with a needle and thread?"

After a moment of surprised thought the other replied that he did not believe he had such a thing at the factory, but he could get any repairing done that he wished elsewhere. He added: "But why in the world do you want it?"

Mr. Bell, assuming a most benevolent expression, replied: "I have conceived so high a regard for your ability to acquire things that I hesitated to enter your sanctum without first sewing up my pockets!"



RUBBER SHOE VARNISHING MACHINE.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

PERHAPS a word or two on this topic may be allowed in so far as the rubber trade may be considered concerned. Although no prominent rubber manufacturer stood as a candidate, the name of Mr. Harvey Du Cros, the conservative victor at Hastings, will of course be familiar to many owing to his association with the Dunlop company. It is said that the main factor in Mr. Du Cros's success was the possession, or perhaps I ought to say the use, of

THE RECENT
GENERAL
ELECTION.

80 motor cars. The motor car played a very important part in the election and there have been plenty of cases where workingmen voters would not be taken to the poll in a horse vehicle as they wanted the novelty of riding in an expensive motor. In the course of the electioneering at Manchester speeches were made at the works of Messrs. D. Moseley & Sons, Limited, by Mr. Balfour and Mr. Horridge, K. C., who won at the poll. In the remarks of Messrs. D. and J. F. Moseley, who presided at the respective meetings, fiscal reform was advocated, it being stated that the firm had recently lost an order for 3000 lengths of hose, which had gone to Germany. Elastic thread, cut sheet, and tires were also mentioned as goods in which the firm were losing orders owing to foreign competition in England. A 5 per cent. tariff would prevent these losses of business, it was said, and the firm therefore strongly supported the policy of retaliation. Where a good many issues are before the electorate it is difficult to say which has been the most important in the voting. The great Manchester Liberal victory is generally attributed to the support of Free Trade, but the manager of a large rubber works tells me that the Liberal success was largely due to a general feeling that the Conservatives had had a long enough innings and that the other side deserved a look in. During the past year or two, two or three men prominently connected with the rubber trade had been looked upon as probable candidates, but they withdrew and with the exception of Mr. F. J. Fuller, who was re-elected in the Westbury division of Wiltshire and who is financially interested in the Avon Rubber Co., I am well aware that the trade is otherwise represented than in the case of Mr. Du Cros already referred to. It might be mentioned that a son of the last named gentleman stood for one of the London divisions, but was not successful.

THE name of Richard Russell Gubbins has appeared of late years several times in the lists of patents referring to rubber

MR. R. R. GUBBINS.

scrap and its treatment, the most recent reference being to his patents for a mechanical arrangement to minimize labor in the treatment of scrap in acid solutions. Mechanism rather than chemistry or any intimate knowledge of India-rubber is Mr. Gubbins' forte, and he is forever working at some problem connected with machinery. Apart from his patents his personality is not without interest; probably few who have watched Mr. Gubbins in his working clothes in the not too aristocratic surroundings of a rubber scrap works would associate him with that old Irish family, whose present head is chiefly known as a wealthy owner of race horses. In early life Mr. Gubbins was

a lieutenant in the Sixtieth rifles and gained the medal in the Indian mutiny. On leaving the army to follow his engineering bent he worked for some time in the United States, taking out a patent in 1872 for a paper folding machine to work in combination with a high speed printing machine. This patent he sold to the Hoe company of New York. A patent in connection with rolling mills in iron works realized a considerable sum in England, and it was his former rolling mill practice that led up to his patent machine for the recovery of rubber from armored hose.

In some recent notes I referred to the fact of 6 per cent. being given in a German scientists' paper as the amount of resin in Ceylon Pará rubber. Since then I have had an opportunity of testing some myself and find the figure to be 1.62 per cent.

CEYLON
PLANTATION.
RUBBER

This is much more than I should expect and one can only assume that the German investigator had a sample which was not at all representative. From a certain source I hear complaints that this rubber is already being adulterated with farina, a fact which surprises me a good deal. I merely pass this on as a statement made to me, and have no personal experience to enable me to vouch for its accuracy. Of the flotation of rubber plantation companies there is no end and people are beginning to enquire whether the thing is not being overdone, but as long as money can be obtained the company promoters will continue active.

I HAVE referred recently to the increased numbers and activity of rubber scrap collectors without touching upon a certain phase of the subject as it affects the rubber manufacturers. Not so long ago it was customary for small rubber goods dealers to make a collection of unsalable goods whether

RUBBER
SCRAP
COLLECTORS

due to old age or other causes, and to send the lot to a manufacturer asking him to give his best price. To-day this procedure has undergone a change. The shopkeeper is called upon by the waste rubber dealer's local agent, who generally secures the rubber giving better terms than the rubber works because the scale of the operations and the careful sorting into grades enables the re-sale to be carried out at a profit. As things are at present the rubber manufacturer who wishes to buy scrap has to pay higher prices to the dealer than to the shop keeper, who is now out of his market and this of course quite independent of the rise in the intrinsic value of rubber in the last few years. Another feature with regard to old rubber collectors is that they include other forms of waste material, and a rubber scrap dealer who is in a large way of business tells me that he finds it necessary to buy and do what he can with various waste materials if he wishes to have the refusal of the rubber. For instance, one dealer is seriously contemplating putting down plant for recovering tin from old tin vessels and scrap tin plate, a development which would have been received with incredulity not so long ago. I believe there is an industry known as rag and bone collecting and it may yet be found necessary for the rubber scrap dealer to get into touch with it and to put down plant for making artificial manures,

IN a recent action in the chancery court between Messrs. David Moseley & Sons, Limited, and Messrs. A. J. Nathan & Co. an injunction was sought against the defendants for selling tobacco pouches of Moseley's make at prices which represented a loss. The injunction was refused, by which we may take it that if a firm choose to lose on the sale of a certain article in order to increase their turnover and probably make up the loss in other directions they are at liberty to do so. Of course there is nothing new in this class of trading; it is frequently done and if kept within well defined limits often has a salutary effect on the business in general. It necessarily requires a sufficiency of capital if disaster is to be averted and if carried on at all recklessly will soon show itself to be against the axioms of sound business procedure. Not to pursue this topic further, however, I pass on to a specific statement made by Messrs. Moseley's counsel and which seems to call for a challenge. This statement was that his clients were almost the exclusive manufacturers of tobacco pouches and linings for them. With respect to linings this may be correct, but with regard to pouches the term exclusive even though qualified by the adverb also seems to me quite inappropriate and to prove misleading to those outside trade circles. From sundry indications which have reached me I gather that other large manufacturers have read this statement with pained surprise at the depths of ignorance in which Messrs. Moseley's legal advisers are steeped on this important topic. Of course the number of pouch makers is not at all commensurate with the number of rubber manufacturers generally, but Messrs. Macintosh & Co., and Warne & Co., to say nothing of J. L. Hancock and the Leyland and Birmingham have long been prominent makers and the goods; particularly the two first named have a wide reputation. The black sheet rubber Horsey pouch of Messrs. Macintosh is as largely in favor with some smokers as is the red crocodile pouch of Warne's with others. As regards these red rubber steam cured pouches they have long held a monopoly which has never been seriously threatened in spite of the numerous attempts of competitors. At one time the black sheet rubber pouch was very generally cured with chloride of sulphur in a hot chamber. Then the advantages of the steam cure with sulphur were recognized and this process is now largely adopted. These latter certainly have a longer life than the surface cure and they show no tendency to split at the joints, indeed their life is such that renewals are only wanted after a number of years, a fact which would seem to put an enforced limit upon the production compared with earlier years. Judging by the number of peoples in Europe who use pocket tins for carrying their tobacco it would seem that the Continental demand for British made pouches was not a large one.

IN the last issue of this Journal I notice a letter from the Pitcher Lead Co., having reference, I believe, to what I said a few months ago with regard to the prohibition of the use of white lead in France. I may say that I quite understand that the new French regulations refer to the carbonate of lead, this being what is known all the world over under the name of white lead. I should think that France now offers a very good field for the makers of sublimed white lead to increase their sales, provided they can prove its efficiency as a substitute for the old carbonate. As far as Great Britain is concerned

A CASE AT LAW.

the history of undertakings concerned with the manufacture of non-poisonous white lead forms most dismal reading. The most prominent of these was the White Lead Co. of Possilpark, Glasgow, for which Sir Henry Tyler supplied so much money. It has always proved an extremely difficult task to get the large paint concerns to take to anything but the old so-called carbonate made from the metal. The Glasgow white lead was the sulphate obtained by sublimation from roasting the sulphide ore in air and I presume the Pitcher company's product is of the same chemical composition. As far as the rubber trade is concerned there seems to be practically no difference between the carbonate and the sublimed, a point which I satisfied myself upon by using the sublimed upon a large scale in rubber mixings in place of the carbonate.

AT the opening ceremony of the Manchester and District Cycle and Motor Show held at the Botanical Gardens, Manchester, on February 9, to the mayor of Salford, Alderman Frankenburg, the well known rubber manufacturer, suggested that if the motor cars in use in this country could all be made at home instead of being imported the problem of the unemployed would be solved. I am only quoting from a newspaper report which is probably imperfect, but I think it is pretty well recognized that the bulk of the out of works, excluding the unemployable, are merely laborers, not skilled workmen and certainly not the skilled mechanics who alone can find employment in the motor car manufactories.

A RECENT number of the London illustrated journal *Black and White*, had a picture of the ruins of an India-rubber factory at Moscow. I suppose this will be Minder's the next factory of any importance in the afflicted country after the big St. Petersburg and Riga works. But whether my surmise is correct or not the picture brings forcibly to mind the difficulties which capitalists in Russia are experiencing in these days of unrest. With the exception of Messrs. Reddaway & Co., of Manchester, who have large belting works near Moscow, British rubber firms are not closely concerned with Russia, the factory for making rubber faced card clothing started some 20 years ago by Messrs. Horsfall and Bickam having been stopped after a short run. As an instance of present difficulties it may be noted that the English workmen engaged last autumn by Mr. W. Coulter, manager of the new thread department of the Russian French works at Riga, did not get any further than Copenhagen, whence they returned home, though exactly under what circumstances I am unable to say.

I REGRET to see it stated that the debenture holders in this firm have put in a receiver. The business carried on at the Hackney Wick works, London, was limited to the waterproof branch, which, of course, has seen a period of considerable depression in late years. The concern was made into a limited company some six or seven years ago and has had fluctuating fortunes. In all probability the decision will be come to to wind up voluntarily, in which event the trade creditors will be paid in full by Mr. B. Birnbaum, who with other members of the family hold the bulk of the shares.

MOZAMBIQUE of late has been showing a considerable increase in the export of crude rubber, which is of good quality.

OPEN TO QUESTION.

AFFAIRS IN RUSSIA.

B. BIRNBAUM & SON, LIMITED.

SUBLIMED WHITE LEAD.

NEW ENGLAND RUBBER CLUB DINNER.

As usual the New England Rubber Club scored a success in its midwinter dinner, held in Boston on the evening of February 19. After trying various clubs and hotels for these banquets, the committee returned to their first love the Exchange Club, and its ample accommodations and excellent service proved the wisdom of their choice.

As ever some of the distinguished speakers who had agreed to be on hand failed to materialize, and more embarrassing still were able to notify the committee only at the last minute. The keenest disappointment was perhaps that caused by a telegram received late in the afternoon which read:

Deeply regret imperative and unavoidable professional duty makes it impossible for me to be with you this evening. Sincerely,

WM. M. IVINS.

Messrs. Whitmore and Wadbrook, however, filled in the gap by securing Mayor Fitzgerald of Boston, so that there was no lack of speakers.

The club members and their guests began to assemble at 5.30 P. M. in the spacious reception room. There for an hour was held an informal reception when all talked at once and the true social nature of the club was excellently exemplified.

There were about 150 present, making it one of the best attended dinners yet given by the Club. The dinner way beyond criticism, and Chairman Jones of the dinner committee is to be congratulated on the part of his work, although together with the other two active members of the execution committee, the Treasurer and Assistant Secretary, he did much valuable work.

President Flint who has always claimed that he was "no talker," surprised and gratified all present by his speech of welcome and by the brief well expressed introductions to speakers. The first whom he presented to the club was the Hon. John N. Cole, speaker of the Massachusetts home of representatives. Mr. Cole is a fellow townsman of President Flint, and the latter is very proud of the brilliant record of

the young newspaper man and politician. His subject was "The Press and Politics," and from start to finish he had the crowd with him. He was both witty and eloquent, and greatly amused the listeners by poking good humored fun at Congressman McCall, who sat at his left.

The subject upon which the Hon. Samuel W. McCall spoke was "Railroad Rates and Government Control." Mr. McCall, as a personal favor to the Hon. L. D. Apsley, came from Washington especially to address the club. After getting back at Speaker Cole, he settled down to his subject and spoke for three quarters of an hour, earnestly, vigorously, and convincingly. He reviewed the rate making of the past, here and abroad, and in a word condemned government ownership and rate making by legislation.

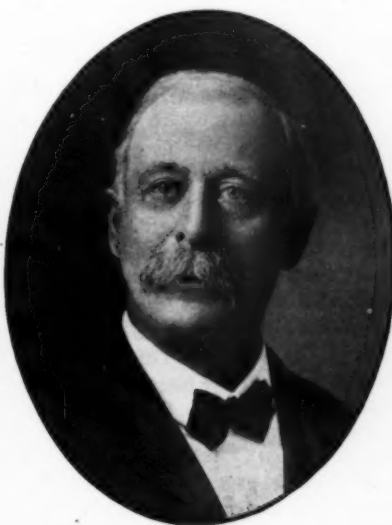
During the latter part of Mr. McCall's speech, Mayor Fitzgerald of Boston came in and when he was introduced as the next speaker he promptly sailed into the former's arguments and made many happy hits. He was slated to speak on the "Industrial Condition of Boston," but a better subject had come to the front and he eagerly grasped it.

Just how many converts either the Hon. Mr. McCall or the Hon. Mr. Fitzgerald secured it would be difficult to say, for they were both roundly applauded, and the impromptu debate although vigorous was most courteous and good natured throughout. At 10:30 the formal exercises terminated, and then another social began which lasted beyond the historic hour (for Boston) of 11 o'clock.

A feature of the dinner that is well worth emphasis is the fact that it brought out the rubber men from far and near and that they nearly all knew each other. The committee on introductions therefore had but little hard work to do in bringing people together. This committee, by the way, was Hon. L. D. Apsley, Costello C. Converse, Ex-Governor A. O. Bourn, Joseph Davol, and A. M. Paul. Among those from a distance who were present were George F. Hodgman, Frank E. Hoadley, Harry G. Fisk, and Harry T. Dunn.



SAMUEL W. MC CALL.



JOHN H. FLINT.



WILLIAM M. IVINS.

A GERMAN RUBBER MANUFACTURER.

THE manager of the Vereinigte Berlin-Frankfurter Gummiwaren-Fabriken (in Berlin), Mr. Emil Spannagel, was born in Barmen, Rhenish Prussia, in 1863. At the age of 17, having finished school, he was sent by his father to America, partly to learn English and also to get a grasp of American methods in business. He obtained a position in the well known New York importing house of Spielman & Co., and after staying with them for two years, under the excellent training of the head of the firm, returned to Berlin to fulfil his military duty as volunteer of the Imperial Guard Kurassier regiment. At the end of his military service he came again to America and spent two years as a traveling salesman for Spielman & Co. and is very proud of the fact that when he made his first attempt to sell goods in the



EMIL SPANNAGEL.

city of Portland, Maine, he booked six orders the first day. His experience as a commercial traveler, which was largely in and among New England business men, he regards as a special element in the foundation of his career. At the end of these two years military duties again called him to Berlin. Then, being much interested in modern languages, and finding great delight in traveling, he took a position with a large house manufacturing surgical goods in Kassel, with the whole of Europe for his territory. He traveled from the south coast of Sicily up into frozen Spitsbergen, going to within a few degrees of Nansen's record point. It was while in Spitsbergen, on board the *Augusta Victoria*, that he found the best comrade of his life, his wife, a lady from the old city of Bremen.

Mr. Spannagel was appointed manager of the Vereinigte Berlin-Frankfurter Gummiwaren-Fabriken in Berlin at the age of 30 and has now filled that position most acceptably for 12 years. He takes a vital interest not only in the varied line of goods that they manufacture, but is also a firm believer that rubber plantations on a large scale are the only solution for the present high price of rubber. So thoroughly impressed is he with this that he is a member of the board of the "Meanja" company, which has invested large sums in rubber plantations in Kamerun, West Africa, and also in the Samoa Kautschuk company. He is a member of the board and treasurer of the Central Verein Deutscher Kautschukwaren-Fabriken of Germany.

Mr. Spannagel is, as would be expected from his extensive travels, very much a man of the world. He speaks seven languages and writes six. He is very much esteemed

by all of his contemporaries in Germany and indeed he has friends all over the world.

CEARA AS AN ANNUAL CROP.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In a late number of your paper you advocated planting Ceará rubber as an annual crop, the same as sugar cane, stating that at least as much rubber should be produced per acre as cane produces in sugar. As I take it, cane produces at least one ton of sugar per acre and I beg to ask: (1) Could a ton of net rubber be harvested yearly from such a field of one-year-old Ceará rubber canes? (2) What soil, etc., is required? Yours respectfully, ED. MAURER.
New York, February 7, 1906.

[THESE questions form a problem that it would be difficult if not impossible to answer satisfactorily at this time. A solution is being earnestly sought, however, and those making the experiments are confident of achieving success. We shall keep a close watch on this phase of the rubber industry and shall publish the result of our observations at as early a date as possible. With regard to soil, and climate suitable for planting Ceará, it is probable that arid land and a tropical climate in which there were marked wet and dry seasons would be the best.—THE EDITOR.]

* * *

MR. E. A. SAUNDERS of the Mishawaka Woolen Manufacturing Co. (Mishawaka, Indiana), who left New York for a Mediterranean trip on February 17, said just before sailing.

"I was exceedingly interested in your editorial in THE INDIA RUBBER WORLD regarding rubber from cultivated sources. I believe the suggestions in that article were very wise and timely. You are working along the right lines, and I hope you will keep it up. I know of no reason why many rubber producers, as they grow readily from slips, could not be planted as an annual crop and the rubber gathered from them just as sugar comes from the cane. Indeed, I would go further than that and suggest that it is perfectly possible that in our own country, that is, in the extreme southern part, some of the rubber producers could be planted as summer crops, the rubber cutting to be done in the fall, and if there is any danger from cold to cover up the stumps during the cooler season."

A CONSULAR REPORT ON GUAYULE.

THE United States consul at Durango, Mr. Le Roy, reports to Washington: "The last Mexican official gazette of patents and trade marks contains a dozen applications for patents on processes for the extraction of this rubber by Americans, Mexicans, and one German. The Continental Rubber Co. is now operating their initial \$200,000 Guayule rubber factory at Torreon, and will make extensions. Pimental & Bro. have received a twenty year federal concession for securing the Guayule rubber on government lands in the states of Durango, Coahuila, Zacatecas, and San Luis Potosi. They are to pay \$25,000 annual rental for each 17,000 acre tract marked off. Government inspection is provided to avoid destroying young Guayule plants, and so perpetuate the industry."

Send for a free copy of Index to Mr. Pearson's "Crude Rubber and Compounding Ingredients," to THE INDIA RUBBER WORLD office.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The citizens of this city who are acquainted with the rubber industry believe that they can consistently claim for Akron the leadership in the rubber manufacturing business of the United States. One company in this city last year did business amounting to \$8,817,000, it is stated on pretty good authority. This same company manufactured rubber tires to the amount of \$2,500,000, while another company, it is stated, had an output of tires amounting to \$3,000,000, the latter devoting its efforts more generally to tires than the other. There are here 14 general manufacturers of rubber goods, and in all 17 companies that make rubber goods and tires. Besides, one large plant is engaged exclusively in the rubber reclaiming business, and several others are entering into the same branch of the industry. Within seven miles, three other rubber plants are located. Two establishments in the city turn out a large amount of rubber factory machinery.

The amount of capital invested in the rubber business in Akron is shown by the fact that ten of the companies have a total capitalization of \$15,475,000, and none of these has a capitalization of less than \$50,000. These companies have all of their capital actively engaged in their business. The two largest companies here had to double their capital stock the past year. The plants in this city are not parts of any large combine, being almost exclusively locally owned and operated. For these reasons Akron claims to be the center of the rubber industry of the United States, and especially of the rubber tire industry. The total output of rubber tires in this city last year has been established at from \$7,000,000 to \$9,000,000.

The International Process Co. has been incorporated under the laws of Ohio by D. Galehouse, O. S. Hart, J. A. Braden, C. B. Myers, and H. E. Riker. It is reported that the company will deal in patents, but the incorporators decline to make any statement for publication. All of them are connected with The Diamond Rubber Co. The capitalization of the company is \$10,000.

The annual meeting of the Faultless Rubber Co., who have plants in Akron and at Ashland, Ohio, was held February 16. The old board was reelected: H. B. Camp, G. D. Bates, H. E. Andress, and T. W. Miller, all of Akron, and A. Vogt, of Rochester, New York. H. B. Camp was elected president; A. Vogt, vice president; C. E. Campbell, secretary; G. D. Bates, treasurer; and T. W. Miller, general manager. The company have had a busy year.

The Diamond Rubber Co. are having erected in Chicago a building which is intended to be the finest mechanical rubber goods and tire store in the country. Three shifts of men have been working day and night on the structure in order to have it ready for occupancy by May 1. The building will be of stone construction, three stories high, with a frontage of 100 feet on Michigan avenue near Sixteenth street, and a depth of 80 feet. At the rear through an alley a large covered space will be accessible for automobile repair work and delivery of goods. The Diamond company will combine their present tire store at No. 1241 Michigan avenue and their main branch at Nos. 167-169 Lake street in this new building.

Mr. A. H. Marks, vice president of The Diamond Rubber

Co., has returned from a visit of two months in Europe. His main object was to look after the affairs of the Northwestern Rubber Co., Limited, at Liverpool, but he also spent some time touring in France, Germany, and Italy, seeking pleasure and investigating trade conditions.

The Swinehart Clincher Tire and Rubber Co. are installing a new vulcanizer, manufactured by the Biggs Boiler Co. The Swinehart company are now turning out a small quantity every day of their reclaimed rubber, made by a process which will not be patented. After the installation of new machinery it is expected to turn out a ton a day of the rubber. A new rubber mill and a large new hydraulic press are also being installed. The company report large sales in tires, with greater results obtained at the Chicago show than at New York.

Since publication was made in the trade papers of the fact that Alexander Adamson was looking for a site for a larger foundry, he has been overwhelmed with requests to locate in different cities. He has received proposals from probably 500 other towns. He has not yet done anything, but instead is putting new machinery in his present plant.

INDIA-RUBBER GLOVES v. BOOTS.

[FROM "THE ELECTRICAL REVIEW," LONDON.]

IN view of the frequent—all too frequent—deaths by electric shock which have occurred of late years, not only to unskilled laborers, but even to highly trained and experienced station engineers, it is important that no means of guarding against such disasters should be overlooked. The inconveniences inherent to the use of India-rubber gloves are painfully evident to those who have to use them, and it is not surprising that not seldom they are dispensed with, no matter what the risk.

We have observed that, apart from cases where contact with high pressure apparatus has been brought about unawares, the victim having had no intention of touching or handling the dangerous parts, and where, therefore, gloves would not be worn, there are many accidents due to shock from hand to foot; these are, in fact, by far the most common in the limited class with which we are dealing. Shocks from hand to hand are comparatively rare. Gloves are a nuisance—why not use rubber boots?

We submit that if the left hand were gloved, and both feet encased in rubber boots outside the ordinary footwear, the right hand might safely be left bare and unhampered, thus enabling the most delicate adjustments to be effected with ease and perfect safety. Thus the clumsiness of rubber gloves would be avoided, while a much greater thickness of rubber could be employed in the soles of the boots without interfering with freedom of movement. Rubber mats, of course, are used in front of most switch-boards, etc., equipped with high pressure apparatus, but one may step off a mat whereas one cannot step off one's boots. Moreover, in many positions mats are quite inapplicable. The danger of contact with the head and hand simultaneously is, of course, present, whether rubber boots are worn or not; but shocks from head to foot are prevented. The same is true of other parts of the body, the clothing being of little protection against high pressure shocks; the danger is certainly less with rubber boots. We commend the suggestion to the consideration of station engineers for what it may be worth.

LETTER FROM A NICARAGUA RUBBER PLANTER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I am as you know a rubber planter, having since 1898 planted near Bluefields in Nicaragua, nearly 200,000 *Castilloa* trees, which now measure mostly from 4 to 10 inches or more in diameter. I have given much time to the problems of bleeding and curing and have so far marketed in New York about a ton of cultivated rubber fully known to Messrs. Poel & Arnold and the Manhattan Rubber Manufacturing Co. of New York. Belangers, Incorporated, of the same place, have also carried on independent experiments and marketed a quantity of very fine rubber. Our yield has been very encouraging.

We have not, however, accomplished anything like what Mr. Etherington reports in your January number to have been done by some of the *Hevea* planters of Ceylon. Yields of 5 to 16 pounds from trees not exceeding 11 or 12 years seem hardly credible. If your correspondent will not take it as a discourtesy, I should like to challenge his statements. They are so wonderful and so important to the planting and manufacturing interests of the world as to be spurned or at once verified even at great expense.

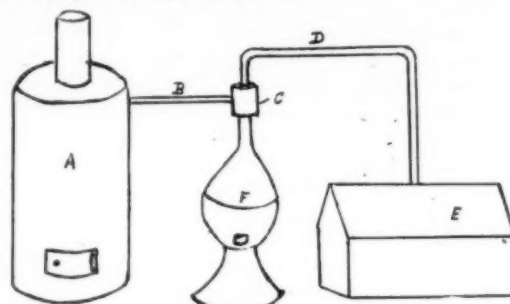
In my neighborhood there are *Castilloas* enough, if they can be made to do as well, to yield five years hence \$5,000,000 worth of plantation rubber at the present market. The total consumption of crude rubber in America is roughly 60,000,000 pounds a year, which at this Ceylon rate might be satisfied in twelve years by the production of 4,000,000 trees at a cost of \$2,000,000. I had thought that planted rubber was not likely to be felt in the markets for 25 years and that with the gradual exhaustion of the wild rubber field and the rise of wages in the tropics, which is sure to come, a rubber famine was surely approaching.

The methods of bleeding described by Mr. Etherington, upon which so much depends, differ from those followed by us in these respects: (1) Frequency of bleeding, (2) reopening the cuts, (3) pricking the wounds. Let us have proof of the magic of these practices.

The Ceylon methods of curing, described by Mr. Etherington, I have read with interest. I should like with your permission to publish what we have done, so that we may have the benefit of criticism by your readers. The coagulation of rubber latex has so far been a difficult problem. Drying in the sun in a moist tropical climate is tedious, and the sun is injurious to *Castilloa* rubber. Drying out of the sun is not practicable. Drying by steam is expensive and all methods of evaporation yield a *Castilloa* rubber prone to the viscous disintegration and tackiness, which characterize Centrals. The same objections, I think, apply to the method of absorption by pouring the milk on blotting paper or porous clays or bricks, followed by my neighbors Belangers.

Because the best Pará, in curing, is submitted to a heat probably greater than 212° and because, on the best authority, the most of the best Congo is boiled in the curing, I tried boiling the *Castilloa* latex. The result was not satisfactory. A large proportion of the rubber in the latex coagulated, but there remained always a residuum of milky fluid which no amount of boiling would cause to give up its

rubber. The Brazilian method was put aside as too expensive. Blowing smoke through the milk by means of a blacksmith's blower attached to a furnace was tried, without any success. When, however, the latex so smoked was boiled the rubber separated completely leaving a lye colored water without a trace of rubber. From these experiments the conclusion was made that smoke and heat would effect coagulation. Having a steam boiler, the apparatus of which I present a rough drawing was set up.



RUBBER SMOKING APPARATUS.

[a - steamer boiler; b - steam pipe; c - steam syphon; d - discharge pipe; e - latex vat; f - smoke making furnace.]

Steam passing from the boiler through the syphon continues through the discharge pipe drawing with it into the latex the whole smoke supply of the furnace. The latex is violently agitated and gradually reaches boiling heat. As the boiling point is reached, the rubber completely coagulates. A few minutes of boiling is enough. The coagulated mass is then lifted out and sliced thin and hung over poles to dry. Because of the working of steam in the mass, it is porous and dries very quickly. Indeed, there is no other way of drying rubber except by reducing it to paper-like sheets. The process is quick, simple, and cheap. Rubber so coagulated has been kept six months without sign of viscosity or shortness of grain. The method is in effect that of Brazil, and its chief merit aside from solving coagulation is, I venture to think, the diffusion through the rubber of the preservative elements of woodsmoke. The active principle of coagulation with heat is doubtless acetic acid. It has been suggested to me by Professor Lang, of Toronto University, that crude wood alcohol, that is, alcohol from which the acetic acid had not been removed, might be an effective coagulant.

It was found that it did not do to use woods for smoke production which blazed readily and so, I venture, consumed the necessary elements of smoke. At last, it was demonstrated that the best fuel was the nuts of what is locally known as the silico palm growing very extensively in the swamps of Nicaragua and possibly identical with that producing the rubber curing nuts of Brazil. No doubt, their virtue lies solely in the fact that they give off a dense smoke and simulate a wood distillation. But I bow to the chemists. We use, in bleeding, clay to make a continuous surface from the bark into the receiving cups. Some of this clay mingles with the latex and, if not removed by washing, will hinder by its

mechanical action the success of the process of coagulation described above.

I hope you will be good enough to allow the use of your columns for the debate of these and other knotty problems of the patient and persevering industry of rubber planting.

GORDON WALDRON.

Toronto, February 17, 1906.

MR. WALDRON MARKETING RUBBER.

THERE arrived in New York during the latter part of February the first shipment of rubber produced on Mr. Waldron's plantation in Nicaragua—"Cukra" plantation, owned by The Cukra Co. of Toronto, Limited, and described in THE INDIA RUBBER WORLD July 1, 1905 (page 329). This rubber left Bluefields on the steamer *Corinto* on January 25 and reached New Orleans February 1, coming thence to New York. Mr. Waldron left Bluefields on the same steamer, going to his home in Canada via New York. The Waldron rubber, about 1800 pounds, was delivered to the Manhattan Rubber Manufacturing Co. From a cursory examination it was exceedingly attractive. It came in irregular strips, quite dark as to color, and rather spongy, thus allowing it to dry easily, but it was firm, free from surface stickiness, and when cut showed a very dense texture. After washing and drying it was apparently as tough as coarse Pará. Experts valued it at \$1.26 a pound and if large lots of it were obtainable a somewhat better price could be named.

SHIPMENT OF MEXICAN PLANTATION RUBBER.

MR. GEORGE CULLEN PEARSON, proprietor of "La Esperanza" rubber plantation, near Orizaba, Mexico, has begun tapping on a commercial scale, the oldest of his *Castilloa* trees being 6½ years old from the date of transplanting, or about 7 years from the seed. He is not attempting to get the greatest possible quantity from the trees, but to test various methods of tapping and a method of coagulation which he has decided upon after extended experimenting, with a view to producing a rubber of the highest possible quality. One shipment of about a ton has gone forward to London, and he hopes to increase the amount to about 5000 pounds during the present month. The illustration on this page gives a view of the interior of Mr. Pearson's rubber drying house from a photograph, Mr. Pearson himself appearing at the left of the picture.



GEORGE C. PEARSON'S RUBBER DRYING HOUSE.



OVERTAPPED PARA RUBBER TREES.

AN illustration on this page is reproduced by permission from "Ten Thousand Miles in a Yacht," the new book by Mr. Richard Arthur, reviewed on another page, and is interesting as showing the effect upon *Hevea Brasiliensis* of reckless and too frequent tapping, by which the latex ducts in the bark have no opportunity to become renewed, and the bark swells out, rendering new tapping after a time impossible. An interesting note on this subject, from a report by United States Consul Aymé at Pará, under the heading "Cameté Rubber from Brazil," appeared in THE INDIA RUBBER WORLD August 1, 1904 (page 379).

RUBBER EXPLOITATION IN BRAZIL.

AT the fourth annual meeting in London recently of the Brazilian Rubber Trust, Limited, Mr. Ashmore Russan who presided said that the income for the year ended September 30, 1905, was £3,255 or £755 more than they had looked forward to as the minimum amount. The estates are still under lease, and it was reported that the lessees were doing a business of £80,000 a year, at a profit of £20,000 or £25,000. When the company had gathered their own rubber they had lost money, but then the circumstances were different, Mr. Russan said. For one thing the price of rubber was only 2s. 6d. per pound then, against 5s. 4d. now. The company were considering plans for the sale of the property, and the lessees were desirous of making a lease for a longer period, but, of course, better terms for the company would be demanded. [For the last preceding report see THE INDIA RUBBER WORLD, February 1, 1905—page 151.]

MACHINE FOR TESTING RUBBER.

THE *Malay Mail* recently referred to the apparatus specially designed by the director of agriculture of the Federated Malay States (Mr. J. B. Carruthers) for testing the elasticity and resiliency of rubber, which is now being experimented with at the laboratory of the department of agriculture. The object of such machines is to subject the piece of rubber to be tested to a measured and exact strain, and one which increases gradually from nothing to the required amount. In Mr. Carruthers's machine this is achieved by pouring a fine stream of quartz sand into a receiver attached to the rubber being tested. The rubber is first carefully measured between two marks; then the required strain is applied, and a second measurement, showing the amount of

stretching, is taken. After the strain has been removed, a third reading is taken to show the recoil of the rubber, which, in the best products, should not be far from the original measurement. The whole apparatus is enclosed in a copper case with a glass door and a water bath below, in order to keep the rubber at a constant temperature, so that comparative tests may be made. The measurements are taken by sliding pointers moved by handles from the outside and running on a scale graduated to millimetres and tenths of an inch. A large number of rubbers will be tested so as to show the relative physical properties of old and new, of rubber chemically pure, and of that containing small proportions of resin.

THE ZAPOTE TREE AND CHICLE GUM.

BY A. J. LESPINASSE.*

AMONG the numerous natural products abounding in this fertile region [The Mexican canton of Tuxpam] the Zapote tree stands preëminent, its gum and wood during many decades having formed a source of wealth to a large number of individuals and corporations, native and foreign, which have obtained from the state government proprietary rights or concessions to extract Chicle gum.

The wood of the Zapote tree† is dark purplish red, and although exceedingly hard when first cut it is easily worked until thoroughly seasoned, when only the finest edged tools have any effect on its flint like surface. Sharp pointed nails can be driven into the wood only about an inch. The fiber is so dense that the wood sinks rapidly in water, and will remain immersed for years without being affected in the least. Zapote door frames in the ruins of Uxmal are as perfect to-day as when first placed in position. The wood is susceptible of a beautiful polish. The average Zapote will square 5 to 8 inches and occasionally 2 feet. It is claimed that the bark is employed to great advantage in tanning processes, and that leather so treated is superior to other kinds.

The magnificent trees are rapidly disappearing, as the operators are taking no precautions to protect them from the destructive methods of the *chicleros*, who, in their greed to obtain all the sap possible, cut the trees so deep that they do not recover from the effects of the incisions, but gradually decay. Before the trees reach this stage, and while still easy to work, they are cut down and shaped into building material.

The Chicle industry extends from this section as far as the extreme southern portion of Yucatan, which produces the largest yield, but in quality the gum is inferior to that obtained from this section, especially in the Tuxpam district. The latter gum commands a higher price in the United States, to which it is almost exclusively shipped.

Zapote trees thrive best on high, rolling land, and although trees are found on the lowlands, they are inferior in both sap and wood. Continuous tapping does not appear to have a seriously detrimental effect, provided the incisions are not too deep. Trees are known to have been tapped for 25 years, but after that time produced only from $\frac{1}{4}$ pound to 2 pounds of sap. If allowed to rest five or six years they will produce from 3 to 5 pounds. The average height of the trees is about 30 feet. Zapotes are exceedingly slow in growth, and require from 40 to 50 years to attain full height.

* United States consul at Tuxpam, Mexico; extract from a forthcoming official report.

† *Achras zapota*, of the natural order *Sapotaceæ*. The same natural order embraces the genus *Islandora*, which yields Gutta-percha, and the genus *Mimosa*, the source of Balata. [See an article on "The Basis of The Chewing Gum Trade," in THE INDIA RUBBER WORLD, November 10, 1895—page 43.]

The Chicle season opens early in September, though the yield at this period is limited, and, owing to still copious rains, the *chicleros* (laborers) are retarded in their work; but this is to a great extent a benefit, as rains are favorable to an abundant flow of the sap, provided the rainy season is not prolonged beyond October, in which case sap would contain a larger proportion of water, and the loss in condensation would be heavy and the product inferior. New trees will produce from 15 to 25 pounds of sap, according to size. In order to produce 25 pounds a tree would have to square about 2 feet and be from 25 to 30 feet high.

The process of extracting the sap is extremely primitive. Open V shaped incisions are made in the tree trunks, permitting the sap to flow in a continuous stream. At the foot of each tree a palm or other appropriate leaf is fastened, which acts as a leader or gutter from which the Chicle drips into the receptacle placed to receive it.

The sap as it flows into the incisions is beautifully white, has the consistency of light cream, but as it runs down it gradually becomes more viscous, until, as it drips into the receiving receptacle, it is of the density of heavy treacle. It is very adhesive, and is extensively employed for repairing broken articles and fastening leather tips to billiard cues. When the receptacle is filled it is emptied into a large iron kettle mounted on a temporary stone foundation, with a small opening for wood, the fuel used in the boiling process to evaporate the water, which amounts to about 25 per cent. of the sap. As the boiling progresses the Chicle thickens, and when it has reached the proper consistency it is allowed to settle until a trifle more than lukewarm, when it is kneaded to extract more of the water content, and is then shaped by hand into rough, uneven loaves weighing 5 to 30 pounds. If carefully cooked it is of a whitish gray shade; if carelessly handled and improperly boiled it is a dirty dark gray. When prepared with extra care it is of a light pinkish color. Much deception is practiced by the *chicleros*, who, in order to increase the weight, insert stones, bark, sand, or wood in the boiling Chicle before it is formed into loaves. The sap freshly extracted will weigh about 7 to 8 pounds to the gallon.

Prices in this market range from \$8 to \$15 Mexican currency [\$3.82 to \$7.16] per 25 pounds; last season the average was about \$14 [\$6.38] per 25 pounds.

If a good worker, a *chiclero* can obtain 50 to 75 pounds of Chicle a week, for which he receives 20 cents Mexican [9.54 cents] a pound. As a rule, arrangements to extract the Chicle are made with *capataces* (contractors), who have charge of the men. They receive about 40 cents Mexican [19.08 cents] per pound, and from this price they must feed and pay their employees.

TO TRADE IN RUBBER IN AFRICA.

THE Tanganyika Rubber and Trading Co. of South Africa was mentioned in the July 1 issue of this Journal (page 389) as having been incorporated under the laws of Montana, by Roland H. Creech and others. It appears that Mr. Creech, who resides at Butte, Montana, has spent twelve years in South Africa, doing contract work for the late Cecil Rhodes and the English Chartered Co. Mr. Creech is confident of being able to deal satisfactorily with the natives around Lake Tanganyika and of getting rubber at a cost which will enable his company to make a good profit. Mr. Creech holds a number of concessions and plans to ship produce by Mombasa, on the eastern African coast. This is the first American company in the field referred to.

PROGRESS OF RUBBER PLANTING.

MALACCA RUBBER PLANTATIONS, LIMITED.

HERE has already been recorded in these pages the history of the preliminaries for the acquisition, by a new company to be known as The Malacca Rubber Plantations, Limited, of the important Bukit Asahan rubber estate, in the Malacca settlement, Malay peninsula, founded by the wealthy Chinese merchant Tan Chay Yan, and owned hitherto by The Malacca Rubber and Tapioca Co., Limited, in which Tan Chay Yan is the principal shareholder. The capital of the new company is £300,000 [= \$1,459,950], of which £115,000 is in 7½ per cent. cumulative preference shares and £185,000 in ordinary shares. On January 24, £95,000 in preference shares were offered to the public in London and, it is understood, were subscribed many times over. Details regarding the estate appeared in THE INDIA RUBBER WORLD September 1, 1905 (page 413) and October 1, 1905 (page 15). The prospectus recently issued contains a new statement of the number of rubber trees on the estate which, according to the latest report, is 421,581 *Hevea* and 63,705 *Ficus elastica*. The old company receive £65,000 in cash and £100,000 in ordinary shares and £20,000 in preference shares. Besides, Tan Chay Yan subscribed for £10,000 in ordinary shares. Among the list of vendors appears the names of A. H. Alden and A. W. Stedman, of the crude rubber trade in the United States, who take jointly £10,000 in ordinary shares. The registered office in London is 4, Sun court, Cornhill, E. C., and the secretary J. A. H. Jackson. Mr. P. J. Burgess has been appointed manager of the estate, and from the age of the older plantings it is anticipated that the collection of rubber will not long be deferred.

OTHER NEW RUBBER COMPANIES.

THE Shelford Rubber Estate, Limited, with £65,000 [= \$316,322] capital, has been formed in Glasgow, to acquire and work the "Shelford" estate, in Selangor, Federated Malay States. "The estate extends to 540 acres, 520 of which are fully planted with over 100,000 Pará rubber trees. Of these approximately 10,500 are already of bearing age, and, with the exception of 18,000 trees planted last year, the whole plantation will be in bearing in 1909." The board includes several rubber planters, and William W. Maclellan, of George Maclellan & Co., rubber manufacturers of Glasgow. Macdonald, Stewart & Stewart, c. A., secretaries, 126, Hope street, Glasgow, Scotland.

The Tenom (Borneo) Rubber Co., Limited, has been floated in Glasgow, with £100,000 [= \$465,500] capital, to acquire from Frank Bost, of Glasgow, a grant of 10,000 acres from The British North Borneo Co., with a view to the cultivation in Borneo of *Hevea* rubber. The company plan operations in the Padas valley, in the vicinity of Tenom. The British North Borneo Co. guarantee 4 per cent. dividends for 6 years. Alexander T. Forgie, c. A., secretary, 22, Renfield street, Glasgow, Scotland.

The Rubber Estates of Johore, Limited, is a new London company, with £150,000 [= \$729,975] capital, of which £115,000 in shares were offered February 3, to take over 25,000 acres in Johore (Malay peninsula), granted to Sir Frank A. Swettenham, K. C. M. G., late governor of the Straits Set-

tlements. The development proposed relates largely to planting *Hevea* rubber. Sir Frank will be a director in the new company. H. Eric Miller, secretary, 11, Idol lane, E. C., London, is secretary also of the lately formed Anglo-Malay Rubber Co., Limited, in which Sir Frank Swettenham is a director.

The Brazilian Rubber Plantations and Estates, Limited, is a London company formed to acquire certain estates in the Brazilian state of Ceará, reported to include, besides growing sugar and coffee, with machinery, buildings, etc., plantations of *Hevea* and *Manihot Glaziovii* rubber embracing 400,000 trees 5 and 6 years old. The number of each species is not given. There are also 20,000 *Manihot* trees planted earlier by natives. The capital of the new company is £180,000 [= \$875,970]; shares amounting to £145,000 were offered to the public February 5. The secretary and offices are J. H. Rowntree, 16, Philpot lane, E. C., London.

A LONDON RUBBER BROKER VISITS CEYLON.

THE *Ceylon Observer* reports a visit to Ceylon of a partner in the firm of Lewis & Peat, who are probably the leading rubber brokerage firm in London, having been interested in that business for about 50 years. The firm, as readers of THE INDIA RUBBER WORLD know, have been favorably disposed toward the cultivation of rubber and Mr. Andrew Oliphant Devitt, the gentleman referred to, went out prepared to study the preparation of rubber on plantations in Ceylon and the Malay States. He was supplied with specimens of all the grades of plantation rubber which had reached London from the Far East, having first consulted the rubber manufacturers at home fully in regard to the various qualities, his object being ultimately to make the planters better acquainted with the ideas of the consumers in regard to the merits of the different grades and of the different methods of preparing rubber. Mr. Devitt, it appears, is not impressed with the idea that any advantage results in the preparation of rubber in "worm" or "crepe" forms. He states that the manufacturers desire that rubber shall reach them in a wholly "raw" form, as they have facilities for washing in their works. Mr. Devitt stated that he was not able to say as yet for what purposes plantation rubber was chiefly used by the British manufacturers. He thought there was no harm in using a little acetic acid for coagulating the latex.

RUBBER INVENTIONS IN CEYLON.

SEVERAL applications for patents, which have been filed at Calcutta, India, relate to inventions in connection with the crude rubber industry. Three recent inventions by Mr. George Smith Brown, an engineer of Talawakele, Ceylon, are as follows: (1) A process and apparatus to assist the flow of latex when a rubber tree is being tapped; (2) a process and apparatus for removing the proteid, sugary, and other objectionable matter from crude rubber, for conversion of the crude rubber into material of uniform quality for rendering the finished rubber "tacky" proof and capable of being rapidly dried; and (3) a process and apparatus for the economical preparation and production of rubber of a uniform quality and for the collection and storing of rubber latex.

A NICARAGUAN RUBBER PLANTER AND TRADER.

MR. JULES AMADÉE BELANGER, whose picture appears in connection with this brief sketch—a picture, by the way, that was secured by the writer not long since in Nicaragua, when Mr. Belanger was in the undress uniform peculiar to tropics—is perhaps the best known and most interesting figure in Nicaragua to-day. He is thoroughly American although a British subject, his birthplace being Montmagny, Quebec. He has been in Nicaragua for some seventeen years and for ten years or more has occupied the office of British vice consul. During these years Mr. Belanger has taken a very practical interest in the upbuilding of the business interests of his adopted country, is connected with all of the large mining propositions, and is also a large stockholder in rubber plantations like "Cukra" and the "Manhattan." In addition to this, he is the head of a large trading company known as Belanger's Incorporated, which is perhaps the largest company of its kind and the most successful in Central America. Mr. Belanger is a great believer in the future of rubber planting and has done much to further it, both by



MR. J. A. BELANGER.

investing money and by helping those who were making beginnings at planting. He is a leading spirit of the colony that centers in and about Bluefields and has the respect and confidence of the Nicaraguan government. Personally Mr. Belanger is short, thick set, very energetic, and does not show in the slightest degree the effect of a climate that is so apt to be demoralizing to the white man.

RUBBER PLANTING IN THE PHILIPPINES.

THE *Ceylon Observer* gives some details regarding the Davao Planters' Association, which is described as a "go ahead body of Americans who are doing pioneering in Davao down in the corner of Mindanao," a wild and almost savage region and "jumping-off place" of the island. It appears that some forty Americans have formed a regular colony there and are engaged in planting hemp and cocoanuts, though rubber is attracting keen attention. Some experiments have been made in planting *Hevea* and the *Observer* says: "The plants already growing there are doing well, and there seems to be no reason why the industry should not do as well in the Philippines as in the Federated Malay

States and Ceylon." One Davao planter hopes to form an American company for rubber planting solely. The *Observer* reports the visit to Ceylon of one of the Americans who visited some of the plantations there, and arranged for the purchase of *Hevea* seeds for shipment to the Philippines. The secretary and treasurer of Davao Planters' Association has been appointed assistant to the governor in his province.

A RUBBER LATEX PROTECTOR.

AN application for a Ceylon patent has been made by A. H. Bury, for what he calls a latex protector, the object of which is to protect the tin cups placed on the rubber tree to catch the latex, from rain direct or slanting, or from the impurities in the way of bark, leaves, and the like, that are liable to find their way into the cups. The protector consists of a zinc collar around the trunk of a tree, sloping downwards at an angle of about 45 degrees. The protector has an edging of felt where it fits onto the tree, so as to catch any moisture running down the trunk and allow it to drain off the roof over the latex cup. The collar is fastened with a stud fastening, there being several holes in one end of the collar to allow it to be attached at various times to trees of different girths. The idea is that the new device can be supplied at a cost of a few cents each.

BRAZILIAN PRIZES FOR RUBBER PLANTING.

THE successful cultivation in southern Brazil of the indigenous Ceará rubber (*Manihot Glaziovii*), known locally as "manicoba," has been referred to more than once in the INDIA RUBBER WORLD. The *Brazilian Review* reports:

"The government [of the state of Rio de Janeiro] has decreed a prize of 30,000 milreis, for any one who exhibits 100,000 manicoba rubber trees within 18 months from now, and other 3 prizes of 15,000 milreis, 10,000 milreis, and 5000 milreis, for the three next largest plantations, the smallest of which in order to gain a prize must not be of less than 20,000 trees. It appears that, not to speak of the value of the rubber, the coffee trees benefit greatly by the shade afforded by the rubber trees. This is another of the many instances of Dr. Nilo Pecanha's intelligent efforts and administration. Senhor Mauricio Haritoff, one of the chief initiators of the planting of manicoba, in waiting on Dr. Nilo to thank him for the decree in the name of the planters of this important product, showed an account sales of a consignment to Hamburg which was sold at 7300 reis per kilo." [At the rate of exchange current at the date of this publication, 30,000 milreis would be equal to about \$10,000, gold.]

AFFAIRS IN THE ACRE DISTRICT.

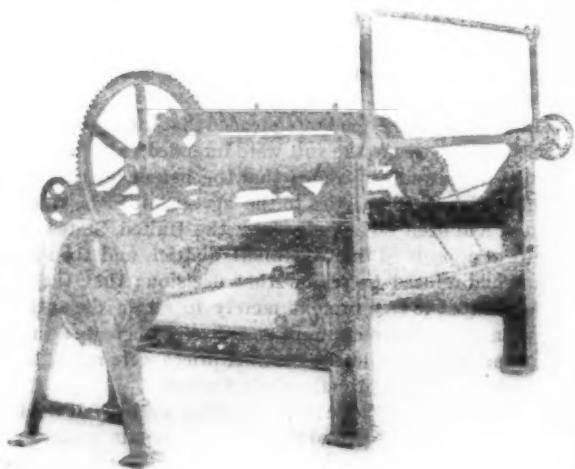
THE *Brazilian Review* (Rio de Janeiro) continues to report an unsatisfactory condition in the Acre district, which, since it was relinquished by Bolivia, has been administered as a Federal territory, from the national capital. The prefects sent out from Rio have failed to gain the sympathies of the people, who regard their rule as despotic. It is reported that the prefect of one of the three districts has been levying heavy additional taxes on rubber, increasing the established duty of 18 per cent. *ad valorem* to 23 per cent. The state of Amazonas is making strenuous efforts to annex the territory, which are being opposed by the people of the district as strongly as they opposed the former rule by Bolivia. What the people really desire is to have the district organized into an independent state.

THROPP'S DUCK SLITTER.

A MACHINE not often found in the small rubber shop is the duck slitter. Its use, however, is such a saver of time, such a pronounced advantage over cutting duck or other fabrics by hand, that it has become indispensable wherever belting is made or any other article manufactured by the rubber trade, containing duck that requires longitudinal cutting, or, in factory parlance, "slitting."

Although machines for slitting duck have been used for many years, there has been little change in their general features, the one illustrated here being one of the latest model. This lack of change or improvement possibly is owing to the machine, leaving little working margin, so to say, for the imagination.

A machine like the one illustrated here will handle duck in any width of weave. The roll of fabric to be slitted is hung upon a detachable bar. The free end of the fabric is carried forward between the knife bar and the cutting cylinder, and attached to the mandril or shell, upon which it is to

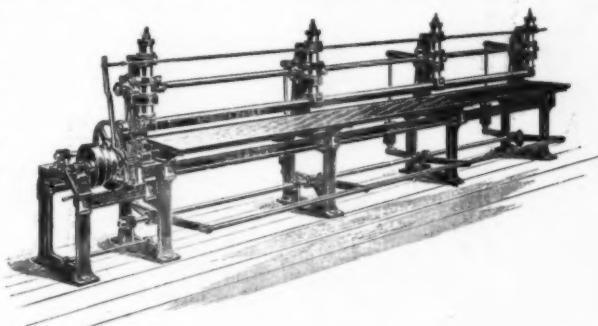


be wound, the power for winding or re-rolling being imparted through the medium of a sprocket chain as shown. The knife bar is hung with adjustable "dogs" or guides, each slotted to hold a knife which is held in place by a set screw. The cylinder over which the fabric passes and which is in reality a cutting table, is of iron, hollow, and sometimes covered with brass. Its surface is cut with longitudinal grooves, $\frac{1}{8}$ inch deep, about $\frac{1}{2}$ inch apart, which engage the point or edge of each cutting blade used, preventing the swerving of the knife, and insuring a straight cut. Any fabric is liable to wrinkle as it is drawn over the cylinder against the knives, and to further prevent this, the "dog" or guide on the edges should be provided with a long curved spring of flexible steel so placed as to press upon the fabric at the point of cutting, thus holding it in smooth contact with the cylinder.

This method admits of slitting the fabric at one operation, to as many strips as may be required. Running at moderate speed, requiring for its operation four to six horse power, upward of 400 yards can be slit in a half hour. The machine shown in the illustration is manufactured by William R. Thropp, Trenton, New Jersey.

WRAPPING MACHINE FOR TIRES.

THE machine illustrated here has been designed specially for wrapping inner tubes for pneumatic motor tires. The machine is on the three roller principle, viz.: with two bottom fixed rollers and one top adjustable rising and falling roller. After the tube has been put on the mandril, a certain length of cloth is wrapped evenly and straight on the tube by the machine. The machine is then allowed to run for a certain time, until the cloth is thoroughly stretched and levelled the whole length of the tube. This manner of wrapping also ensures the tube being of equal thickness and of perfect vul-



canization the entire length. The output of this machine is referred to as being far in excess of the old method of hand wrapping, besides doing its work far better. The pressure is brought to bear on the surface of the material being wrapped on the mandril by a foot rest running full length of rollers in front of the machine. In consequence of the perfect balancing arrangement of the top roller, which is fitted with ball and roller bearings throughout, and the easy working of the machine, it can be operated from any position in front by the attendant quite easily, and any required pressure can be brought to bear on the mandril. The top or pressure roller is adjustable in every way so as to get equal pressure the full length of the rollers. [David Bridge & Co., Manchester, England.]

MR. HOLLOWAY ON "LACE RUBBER."

[FROM THE "CEYLON OBSERVER."]

I NOW have the pleasure of stating that the first consignment of "lace" rubber sent to Hamburg was sold at 14 marks per kilo, or as near as possible 6s. 1½d., about the highest price paid, during the same week, in London for biscuits or sheet. When you consider the fact that lace is ready for packing in 48 hours, and that no expensive machinery is required, no power to drive the machine as in the case of crepe, which requires 8 or 9 HP. (whereas lace requires only about ½ HP.), besides the great saving in labor, the superiority of manufacturing the rubber into the form of lace is apparent. The brokers' report is as follows: "The rubber is reported upon to be first class and is valued at 14 marks per kilo, at which price the parcel has been sold."

The brokers are all mad on sheet rubber just now; but is this practicable on a large estate, where a large acreage is in bearing? For it takes just as long to dry as biscuits, or in fact longer; consequently a very large drying space will be required.

FRANCIS J. HOLLOWAY.

THE OBITUARY RECORD.

GEORGE B. THOMSON.

GEOURGE B. THOMSON, who was for many years general agent of the Goodyear Rubber Co., in St. Louis, died at his home in that city on January 27, after a lingering illness. Mr. Thomson had not been in good health for a number of years and had largely relinquished the details of his business position to his assistant.

Mr. Thomson was born in Baltimore, Maryland, February



6, 1839. It is said that he decided early in life upon the rubber goods trade as a basis of his business career. At the beginning of the civil war he joined the Confederate army, serving on the staff of General Richard ("Dick") Taylor. He served throughout the war, making a good record as a soldier. He then settled in St. Louis, and engaged in the rubber goods business, as agent and

manager of the St. Louis branch of H. G. Norton & Co., an important Easton jobbing house.

In 1872 the Goodyear Rubber Co. (New York) took over the business of H. G. Norton & Co., in St. Louis and elsewhere, and continued Mr. Thomson in his position. Later, when the Goodyear company opened a branch house at Kansas City, this also was placed in charge of Mr. Thomson.

Mr. Thomson became prominently identified with many local enterprises. He was one of the incorporators of the Mercantile Club and thereafter always an active member. It was at his suggestion that the St. Louis natatorium was built—the first institution of the kind in St. Louis. He was also for many years a trustee of the St. Louis College of Physicians and Surgeons. He was clear headed, active in mind and body, with very decided opinions, but in no degree unwilling to change them if he could see the reason why. He was a "Confederate," first, last, and all the time; but a good fellow, and those who were associated with him all the forty years of his rubber business life will miss his genial greeting.

Funeral services were conducted at the late home of Mr. Thomson on January 28, by the Rev. Dr. M. Rhodes, pastor of St. Marks English Evangelical Lutheran Church. The body was cremated in accordance with Mr. Thomson's wishes. Mr. Thomson left no immediate relatives. The funeral was attended by Miss Alice Forney, a first cousin.

"Tijellinhas para Borracha" (the tin cups for gathering rubber used on the Amazon) are advertised by an enterprising Pará tinsmith at largely reduced rates—the first hopeful indication for cheaper rubber from that region for many, many months.

DECISION AGAINST A TIRE POOL.

A DECISION of unusual importance is that rendered by Judge Sanborn, in the United States circuit court for the eastern district of Wisconsin, in the suit of The Rubber Tire Wheel Co. v. The Milwaukee Rubber Works Co., to recover royalties for tires made under United States patent No. 554,675, issued to A. W. Grant for solid rubber tires.

The defenses were that the license contract securing the royalties is denounced as illegal by the Sherman "anti-trust act," making void every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce, among the several states. Also that the royalty contract was invalid under the Wisconsin statute of 1898, prohibiting corporations organized under Wisconsin laws from entering into any combination, conspiracy, trust, pool, agreement, or contract intended to restrain or prevent competition in the supply or price of any article constituting a subject of trade or commerce in Wisconsin. Defendant is a Wisconsin corporation.

In reply to these defenses, the plaintiff argued that they are immaterial, because the articles in question are patented, and the royalties claimed are under a patent monopoly; hence the license came under neither the federal act nor the Wisconsin statute.

In rebuttal the defendants pleaded that the agreements between the parties to the suit were intended to form a combination in restraint of trade; that the patent referred to was believed by all the parties to the agreement to be void; the patent had been so adjudged by the United States circuit court of appeals in the Cincinnati district, and the supreme court had refused to review that decision; that the patent was resorted to as a pretext merely to evade the anti trust laws, and the contracts were meant only to create an unlawful combination, whereby contract prices were raised beyond the natural and legitimate market prices.

The decision of Judge Sanborn, after a review of the terms of the agreements, and of the like agreements made by the owners of the Grant patent with other rubber tire manufacturers, says: "These contracts most clearly make a combination within the Sherman act, if the subject matter be within that act. That is the only question in the case." The long extended litigation over the Grant tire patent [reported in THE INDIA RUBBER WORLD at various times] is then reviewed. There is no implication in the decision that, in the peculiar circumstances of the case, all parties to the agreements may not, in good faith, have believed that the validity of the Grant patent would ultimately be sustained. One result of the litigation to date, however, is that in some jurisdictions the validity of the Grant patent is now recognized, which in others it is not. The sum of the decision in brief is that—

In two important ways the provisions of these contracts attempt to secure results not contained within or flowing from the lawful monopoly of the patent. First, they raise and maintain prices, and restrict trade and interstate commerce, in Michigan, Ohio, Kentucky, and Tennessee, where the patent monopoly has no practical existence; second, they create a fund for crushing competition in interstate commerce throughout the whole country, as well in the sixth circuit as elsewhere, and not only competition in the Grant tires between outside manufacturers and those who are in the combination, but competition of all other rubber tires against the Grant tire.

Having thus decided that the case comes within the scope of the federal law, the court deems it unnecessary to consider the effect of the anti trust law of Wisconsin. The suit claimed royalties in the sum of \$4109.42, but after deducting certain offsets, the plaintiff, if entitled to recover, should have had judgment for \$2517.66, with 6 per cent. interest.

THE SEASON IN RUBBER FOOTWEAR.

WHEN the country roundabout New York is visited by a winter such as the present memorable one, it means many things. To the rubber trade it would be expected to mean first of all a great falling off in the sale of rubber footwear. No one could foretell that there was to be an almost total absence of snow, consequently the usual supply of the heavier winter goods was laid in by dealers. In fact many merchants, having in mind the severe winter of 1904-05, bought much more liberally than usual. The result is that instead of sending in the usual number of duplicate orders, the store shelves still contain heavy rubber boots and shoes. This condition, indeed, prevails throughout the greater part of the United States, with the exception of a strip extending from the eastern half of New England to the Far West, at no point reaching more than a hundred miles or so from the Canadian border. This upper ribbon of territory has had enough snow to warrant dealers laying in their usual stocks of heavy goods, most of which will undoubtedly be sold before summer. But this is only a drop in the bucket when compared with the rest of the great territory covered by the wholesalers and jobbers of rubber footwear.

There is cause for a more optimistic view of the trade in regard to light rubbers. This takes in women's and children's shoes, which comprise a very large majority of the rubber footwear sold. Of this class of goods the sale this winter has not been so large as in former years, yet the falling off has not been so great as might be imagined. The reason for this is that the average woman fears dampness as much as she does snow, and takes precautions against wet feet even when the sidewalks are only damp from rain or fog.

With a view of ascertaining just how hard the rubber shoe trade in New York had been hit by the open winter, an INDIA RUBBER WORLD representative interviewed some of the leading New York jobbers and retailers. The manager of the shoe department of a large department store declared that when the season was ended the books would show that his house had sold more rubber shoes of the lighter grades than last year. The sale of boots had fallen off heavily, he said, and there had been a decrease in the sale of arctics and heavy weights.

At a large retail store it was said that while the final inventory at the close of the season might show a smaller volume of business in rubber shoes than last year, the decrease would be much less than would naturally be expected in view of the open winter. The manager said that he would carry over but little stock to next winter. "One thing to bear in mind is that people are learning more and more that good health depends largely on keeping the feet dry," said he. "That means that more people are wearing rubbers each year. Where one man gives up the practice, half a dozen women take it up, and more than that, many mothers who heretofore have paid no attention to this subject, now see to it that their children's feet are kept dry by means of rubber

shoes. So you see that while trade in one line grows less, the loss is more than made up in other lines. On the whole our trade this winter has been satisfactory."

The story in the jobbing trade was substantially the same. While the business as a whole had not been what was desired, the total sales for the season would not be so far below that of last year as was generally supposed. One jobber voiced the sentiments of the trade when he said that there was plenty of time to "catch up" before the season closed. Early sales were heavy. Then came a lull, with a material absence of duplicate orders such as have been the rule in other years. This was followed by a lively spurt in the latter half of winter.

In the second week in February there came to New York and its vicinity the first real snowstorm of the winter, with a fall of something more than 4 inches. Immediately there was a brisk revival of the rubber shoe trade, which was accentuated by a week or so of warm weather and rain which transformed the snow into slush and water. This was a boon to many of the retailers who had still on hand a stock of heavy rubbers and some of them were cleaned out.

THE TRADE IN CANADA.

A REPORT from Canada which reaches THE INDIA RUBBER WORLD is prefaced with the remark that "it is just as well to let the rubber trade know the facts, as the impression is gaining ground in the United States that Canada is simply a gold mine for rubber men." Our correspondent writes:

"The present winter is the mildest experienced for a great many years, and has considerably retarded the sales of rubber footwear throughout Canada. The shrinkage in sales of all companies is very marked, and merely goes to emphasize the point that everything depends on the severity of the winter here to put sales above the normal standard. Up to the present there has been very little snow, and whilst in past years large sales of footwear have been effected, in the three months just gone by this year results have been extremely disappointing. The time for actual winter conditions has practically gone by, and it will only be due to an abnormally severe ending to the present winter, that sales will reach anything like their normal condition."

NAVY SPECIFICATIONS FOR GASKETS.

A SPECIFICATION issued by the United States navy department requires that the compound shall contain not more than 3.5 per cent. of sulphur, and not over 1 per cent. of resin. In the methods of analysis used all sulphur in the goods whether in the form of free sulphur, sulphur combined with the rubber, or in the form of sulphates, is estimated as sulphur. So that a compound containing 25 per cent. of barytes and 2 per cent. of sulphur would be condemned, while one containing 25 per cent. of whiting and 3.5 per cent. of sulphur would be passed as all right. The 1 per cent. of resin is also an impossible requirement, since the amount of resins extracted by acetone steadily increases with the vulcanization. If the rubber used contained 1 per cent. of resin the vulcanized material will be found to contain from 3 to 5 or more per cent. S. P. S.

DAVID MOSELEY & SONS, LIMITED, (Manchester, England) are experimenting with a new solid rubber tire for motor buses.

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED JANUARY 2, 1906.

- N**O. 808,666 Protector for boots and shoes. [Described in THE INDIA RUBBER WORLD, February 1, 1906—page 167.] C. W. Linthicum, assignor to G. S. Linthicum, both of Baltimore, Md.
- 808,683. Golf ball. F. H. Richards, Hartford, Conn.
- 808,713. Ball [for golf]. R. Appleyard, Silvertown, England.
- 808,721. Non skidding device for tires. C. R. Bullard, St. Ives, England.
- 808,765. Wheel structure. [Involving a solid tire of fibrous material.] J. Ledwinka, Detroit, Mich., assignor of one-half to C. Berg, Cleveland, Ohio.
- 808,775. Packing. [Composed of alternate laminæ of fabric and rubber.] J. Ostrander, Indianapolis, Ind.
- 808,880. Fountain pen. J. A. L. Snyder, Somis, Cal.
- 808,933. Rubber horseshoe. A. Lang, Eden, N. Y.
- 808,948. Overshoe. A. E. Roberts, Norwalk, assignor to N. P. Bowler, Cleveland, Ohio.
- 808,974. Protector for pneumatic tires. [A series of independent narrow metallic strips secured outside the tire.] H. David, Paris, France.
- 809,034. Golf ball. W. T. Thomas, Chicago.
- 809,035. Golf ball. *Same*.
- 809,040. Vehicle wheel [having two hubs, one surrounding the other with an intermediate pneumatic tube]. M. G. Babio, New York city.
- 809,056. Eraser holder [to be secured to the end of a pencil]. F. W. Hayes, Detroit, Mich.
- 809,141. Hot water bottle. E. J. Schutz, Akron, Ohio.
- 809,142. Hot water bottle. *Same*.
- 809,143. Method of making hot water bottles. *Same*.
- 809,144. Horseshoe [with inflatable rubber pad]. J. Singleton, Manchester, England.

Trade Mark.

- 6,324. Rubber water bags and rubber water bottles. The Seamless Rubber Co., New Haven, Conn. *Essential feature*.—A conventional fleur-de-lis with the letters S R C, one letter appearing on each leaf.
- 6,745. Rubber substitutes. The Dermatine Co., Ltd., London, England. *Essential feature*.—The word *DERMATINE* on a scroll and the representation of a hippopotamus.
- 11,985. Rubber erasers. Eagle Pencil Co., New York city. *Essential feature*.—The representation of an eagle with outstretched wings holding pencils in its beak and talons.
- 14,025. Hose pipes, nozzles, gates and couplings. Eureka Fire Hose Co., Jersey City, N. J. *Essential feature*.—The word *EUREKA*.

ISSUED JANUARY 9, 1906.

- 809,276. Harness lining and pad and the like [with inflatable pads]. E. M. Aulton, Bushbury, England.
- 809,311. Fireproof wire. A. M. Lougee, Boston.
- 809,312. Process of making fireproof conductors. *Same*.
- 809,313. Protected conductor. *Same*.
- 809,409. Pneumatic tire. P. W. Tillinghast, Edgewood, R. I.
- 809,530. Flexible tire cover. W. A. Sankey, Sutton, assignor to F. Reddaway, Manchester, England.
- 809,533. Wheel rim [for pneumatic tires]. C. S. Scott, Cadiz, assignor of one half to F. A. Seiberling, Akron, Ohio.
- 809,537. Tire for wheeled vehicles. [Two rows of steel springs, attached to the wheel rim are connected by metallic bridge pieces which serve as the tread; between the rows of springs is a pneumatic tube.] F. H. Sterling, London, England.
- 809,581. Packing. C. Restein, Philadelphia.
- 809,622. Shoe [with waterproof protector between welt and upper]. J. N. Moulton, Haverhill, Mass., assignor to The Waterproof Welt and Filler Co., Hartford, Conn.
- 809,623. Waterproof sole. J. N. Moulton, Philadelphia, Pa., assignor to J. R. Reynolds, Hartford, Conn.
- 809,641. Vehicle tire. [Solid rubber.] J. A. Swinehart, Akron, Ohio.

- 809,650. Combined hot water bag and syringe. M. Van Tassel-Beck, assignor of one half to E. E. Bellamy, both of Cleveland, Ohio.
- 809,713. Waterproof shoe. P. G. Mayhew, Grand Rapids, Mich.
- 809,746. Hose coupling. S. M. Rhoades, Philadelphia.
- 809,759. Hose coupling. R. Toole and J. J. McDonnell, Portage, Pa.

Trade Marks.

- 5,170. Rubber hose. Gorham Rubber Co., San Francisco. *Essential feature*.—The word *AMAZON*.
- 6,325. Rubber nipples for nursing bottles. The Seamless Rubber Co., New Haven, Conn. *Essential feature*.—A picture of Geraldine Doyle.
- 7,641. Rubber heels for boots and shoes. P. F. Minor & Co., Batavia, N. Y. *Essential feature*.—The word *READEASY*.
- 9,531. Rubber insulating compound. The Okonite Co., Ltd., New York city. *Essential feature*.—The word *OKONITE*.

ISSUED JANUARY 16, 1905.

- 809,947. Bathing hat. F. E. Herndon, Dallas, Texas.
- 809,964. Cushion tread and the like for boots and shoes. L. R. Lucherterhand and H. W. Newton, Boston.
- 809,986. Tire and other valves. G. H. F. Schrader, assignor to A. Schrader's Son, Inc., both of New York city.
- 810,060. Packing case [for carrying explosives]. G. H. Leathers, Howard, Pa.
- 810,061. Pneumatic cushion wheel [having a rigid inner portion and a rigid outer portion, with a circular pneumatic cushion between]. C. A. Lee, assignor of one half to A. J. Holzmark, both of Kansas City, Kan.
- 810,257. Blowpipe [having a storage bulb, a pressure bulb, and elastic tubes]. W. M. Bradley, New Haven, Conn.
- 810,284. Fountain pen. F. M. Kegrize, Philadelphia.
- 810,327. Fountain pen. M. R. Crossman, Boston.
- 810,354. Hose coupling. M. L. Scanlon, J. S. Scanlon, and A. A. Arnold; said M. I. Scanlon and J. S. Scanlon assignors of one fourth of their right to M. E. Scanlon, all of Gallon, Ohio.

Trade Mark.

- 10,969. Air cushioning heel and pads and insoles for boots and shoes. The Comfort Heel Cushion Co., Philadelphia. *Essential feature*.—The word *AIREZE*.

ISSUED JANUARY 23, 1906.

- 810,419. Attachment for vehicle wheels [adjusted to the tire, to prevent skidding]. G. W. Kirkpatrick, Rochester, N. Y.
- 810,420. Attachment for vehicle wheels. *Same*.
- 810,470. Fountain brush. E. C. Davey, Chicago.
- 810,510. Belt conveyor. T. Robins, Jr., New York city, assignor to Robins Conveying Belt Co.
- 810,526. Wheel for vehicles. [Instead of having felly and spokes, this wheel is composed of segmental sections, with their sides fitting against each other tangent to the bore of the wheel, and vulcanized rubber inserted between said sections.] T. Gare, New Brighton, England.
- 810,605. Conveyor. C. K. Baldwin and T. Robins, Jr., New York city, assignor to Robins Conveying Belt Co.
- 810,689. Infant's diaper. W. R. Way, Columbia, S. C.
- 810,690. Bird kite. P. Weiss, Highland Falls, N. Y.
- 810,769. Inhaler. E. C. Jones, Woodstock, Canada.
- 810,784. Stopper for ice bags, helmets, and the like. C. W. Meinecke, Jersey City, N. J., assignor to Whitall Tatum Co., New York city.
- 810,842. Artificial denture. J. M. Card, Olean, N. Y.
- 810,885. Massage applicator. E. S. Saighman, Chicago.
- 810,888. Vehicle tire. [Pneumatic.] C. Stein, Akron, Ohio.

Trade Mark.

- 12,103. Tennis shoes. Hood Rubber Co., Boston. *Essential feature*.—The word *GR-YHOUND* and the illustration of a greyhound.

ISSUED JANUARY 30, 1906.

- 810,921. Tire for vehicle wheels. A. Dewes, New York city.
- 810,944. Elastic tire. J. E. Hopkinson, West Drayton, England.
- 811,000. Gasket. V. Tompkins, Jersey City, N. J.
- 811,021. Fireman's protective dress. C. W. Wood, New Orleans, La.

- 811,026. Tire heater. E. Bancroft, assignor of one half to C. M. Milroy, both of Toledo, Ohio.
- 811,039. Storm front for vehicle tops. C. C. Daugherty, Columbus, Ohio.
- 811,109. Pneumatic tire. F. Veith, Höchst-in the Odenwald, Germany.
- 811,111. Syringe. G. C. Wegfarth, Baltimore.
- 811,232. Vehicle tire. J. Lang and A. Fischer, Chicago.
- 811,343. Hose Clamp. W. C. Walker, Battlecreek, Mich.
- 811,345. Tire protector. H. Waxman, New York city.
- 811,406. Air goods. [Mattresses and the like.] H. F. Keil, Bronxville, N. Y.
- 811,413. Hose supporter. [For hosiery.] A. B. Kurtz, Connellsville, Pa.
- 811,490. Pneumatic tire. J. M. Elder, Indianapolis, Ind.

Trade Mark.

- 5,858. Suspensory bandages and jock straps. The S. H. Wetmore Co., New York city. *Essential feature*.—The word CENTURY.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1904.

* Denotes Patents for American Inventions.

[ABSTRACTED IN THE OFFICIAL JOURNAL, DECEMBER 30, 1905.]

- 19,617 (1904). Pneumatic tire. [The ends of a non continuous air tube are closed by means of projecting caps adapted to engage when fitted to the wheel and inflated.] T. W. Haswell, Hartlepool, Durham.
- 19,761 (1904). Anti slipping belt, of leather, for pneumatic tires. J. Hopper, Fulham road, Middlesex.
- 19,788 (1904). Tire cover with resilient core. B. Marks, Southport, Lancashire.
- 19,803 (1904). Catheter. J. E. Arnold, London.
- 19,837 (1904). Chain armor for pneumatic tires. E. B. Hazleton, Sheffield.

[ABSTRACTED IN THE OFFICIAL JOURNAL, JANUARY 10, 1906.]

- *19,928 (1904). Pneumatic tire. [The tread portion of the cover is enlarged and has embedded in it wire fabrics.] H. E. Irwin, Galesburg, Illinois.
- 19,947 (1904). Tread band for tires [made of leather]. H. Garner, Nantwich, Cheshire.
- *19,986 (1904). Fountain pen. [For lettering; consists of a tip secured in a tubular barrel fitted with a rubber bulb.] C. C. Clement, Boston, Massachusetts.
- 20,026 (1904). Tire of steel plates, with cover of rubber. R. K. Hearn, The Downs, Wimbledon.
- 20,080 (1904). Pneumatic tire and means of attachment to rims. A. T. Collier, St. Albans, and Collier Tyre Co., London.
- 20,081 (1904). Pneumatic tire. [Comprises twin parallel air tubes joined by a leather tread.] *Same*.
- 20,144 (1904). Pneumatic tire. [An annular air chamber engages between discs attached to the hub; the tread is of molded rubber.] D. B. Hislop, Aberdeen.
- *20,235 (1904). Bathing cap [thin waterproof material.] A. G. Brooks, London. (C. J. O'Hern, and P. H. Crowley, both of Hyde Park, Massachusetts.)
- *20,259 (1904). Rim for pneumatic tire. O. L. Pickard, Chicago, Illinois.
- 20,283 (1904). Form for molding teats. [The glass is constricted to form a beaded neck when the edge is rolled up and the rubber vulcanized.] J. Dowell, London.
- 20,397 (1904). Pneumatic tire [protected from puncture by a layer of leather in the tread]. J. Edmondson, Burscough, Lancashire.
- 20,415 (1904). Spray producer and disinfectant. J. C. Staples, Birmingham.

[ABSTRACTED IN THE OFFICIAL JOURNAL, JANUARY 17, 1906.]

- 20,460 (1904). Elastic tire. [The wheel comprises two metal rims separated by wedge shaped stays with holes in the outer rim, through which rubber blocks are made to project. B. T. L. Thomson, Clapham common, Surrey.

- 20,578 (1904). Heel protector. W. Bairstow, Bloomfield Belfast, Ireland.
- 20,635 (1904). Wheel for heavy trucks, with solid rubber tires. S. T. Richardson and R. Price, Birmingham.
- 20,673 (1904). Anaesthetizer. E. C. Jones, Woodstock, Ontario, Canada.
- 20,721 (1904). Elastic tire [comprising rubber blocks spaced around a metal rim and secured by detachable plates formed with ribs which enter recesses in the blocks]. B. T. L. Thomson, Clapham common, Surrey.
- 20,763 (1904). Boot soles and heels. T. Burrell, Victoria, Australia.
- 20,796 (1904). Ball and float valve. F. Robinson, Sneinton, Nottingham.
- 20,865 (1904). Cover of untanned hide for pneumatic tires. E. Zohlon, Crefeld, Germany.
- 20,887 (1904). Pneumatic tire [with metal rim to protect the tread]. R. E. H. James, Camberley, Surrey.
- 20,888 (1904). Pneumatic tire. [The cords in tires or tire covers are so arranged that they lie closely together at the tread.] T. Sloper, Devizes, Wiltshire.
- 20,950 (1904). Waterproof dress. L. M. Climpson, London.
- 20,972 (1904). Elastic tire [of resilient metallic rings, through which an air tube may be placed; or the tube may be dispensed with]. V. Gueldry, Paris, France.

[ABSTRACTED IN THE OFFICIAL JOURNAL, JANUARY 24, 1906.]

- 21,114 (1904). Pneumatic hub. [An inflatable tube secured to a ring fitting a sleeve, is boxed in by flanges and a spoke drum which is free to move transversely to the axle for a limited distance and is provided with side plates.] G. Middleton, London.
- 21,153 (1904). Hose cradle. [To prevent hose pipes from kinking.] H. C. Sparks, Brighton.
- 21,177 (1904). Feeding bottle [with vent of rubber tubing]. M. D. Armstrong, Forest Gate, Essex.
- 21,267 (1904). Device for detecting tire punctures. S. E. Bazley, Northampton.
- 21,358 (1904). Pneumatic tire [prevented from puncture by curved plates of leather or other material, fastened to canvas so as to form a continuous band]. E. S. Fardell, Norwich.
- 21,443 (1904). Elastic tire. [A thick flexible tube with orifices which register with corresponding orifices in the rim to allow free communication with the atmosphere.] W. G. Ward and G. Edson, both of Hodthorpe, Whitwell, and G. W. Bell, Whitwell, Derbyshire.
- *21,473 (1904). Non-slipping tread for pneumatic tires [formed of sections consisting of a rubber strip with an embedded fabric]. L. P. Faison, Golconda, Nevada.
- 21,543 (1904). Pneumatic tire. [Armor plates for preventing side slip and puncture are riveted to a leather band, situated in a groove in the tread.] G. Desclee, Laeken, Belgium.
- 21,550 (1904). Sole and heel protector. [The rubber basepiece is provided with a series of studs molded integrally with it.] A. Briggs, Market Harborough, Leicestershire.
- 21,552 (1904). Non-skidding cover for tires. [Comprises notched leather and metal links secured together by pins.] E. Fairburn, Brighouse, Yorkshire.
- 21,559 (1904). Waterproof cloak. S. L. Mandleberg, Pendleton, Manchester.

[ABSTRACTED IN THE OFFICIAL JOURNAL, JANUARY 31, 1906.]

- 21,620 (1904). Pneumatic tire. [To facilitate the removal of a punctured tire and replacing it with a new one the tire is carried by a removable outer ring with a channel and safety nuts fastened to the inner part of the wheel by bolts.] G. Jonas, Hyde Park, London.
- 21,654 (1904). Air cushions and springs for seats, mattresses, etc. A. Pulbrook and E. H. Pulbrook, Hammernsmith, Middlesex.
- 21,671 (1904). Heel protector. T. T. Spencer, New Barnet, Herts, and J. L. Tanner, London.
- 21,772 (1904). Pneumatic tire. [Metallic studs fastened to an exterior leather cover are used to prevent puncture.] C. Vadon, and J. F. A. Tabard, Lyons, France.
- 21,820 (1904). Heel protector. H. Markus, Manchester, and Barnwell Machine Co., Droylsden Rubber Works.
- *21,861 (1904). Horseshoe [with elastic tread portion]. C. A. Allison, London. (F. D. Palmer and G. H. Gillette, New York city.)

- 21,716 (1904). Pneumatic tire. J. H. Clark, Elgin, Scotland.
 21,864 (1904). Surgical swab. L. V. Jones, London.
 *21,869 (1904). Dress shield. G. Lanzendorfer, Jamaica Plain, Massachusetts.
 21,870 (1904). Cap [with two gussets of elastic web inserted in the seams]. M. Schneiders, Whitechapel road Middlesex.
 21,899 (1904). Apparatus for vulcanizing tires. H. H. Frost, London.
 21,959 (1904). Pneumatic tire [with solid or cushion tire secured to the tread portion of the cover to form the wearing surface]. J. G. Young, Coleraine, Ireland.
 22,026 (1904). Cover for tires [comprising bands of metal]. O. Latimer (trading as Standard Motor Tyre and Rubber Mfg. Co.) Birmingham.
 22,066 (1904). Appliance for extracting dust from carpets. T. W. Foid, Westminster, Middlesex.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

- 355,660 (June 27, 1905). R. North. Wearproof tire.
 355,810 (July 1). A. P. L. Francowich. Wear-proof tread for pneumatic tires.
 355,922 (June 29). S. Henry. Wearproof tread for pneumatic tires.
 355,968 (July 7). G. Raillart. Protector for pneumatic tires.
 355,972 (July 7). R. Forget. Pneumatic tire.
 355,892 (July 5). F. Sozer. Improvement in rubber and other materials.
 356,165 (July 13). E. Gorgeat. Tire tube protector.
 356,218 (July 18). E. Fairburn. Anti skid for tires.
 356,245 (July 19). Continental Caoutchouc and Gutta Percha Co. Protector for pneumatic tires.
 356,270 (June 27). J. P. Crane. Rubber compound.
 356,271 (June 28). The St. Helens Cable Co., Ltd., Rubber tire.
 356,293 (July 20). W. Krische. Tire for road vehicles and railroad trains.
 356,306 (July 21). W. R. Sine and J. S. Rosenthal. Improvement in making telephone receivers and other articles of hard rubber.
 356,333 (July 22). E. F. H. Prugnaud. Detachable elastic tire protector, held on by regulated tension.
 356,328 (July 22). M. Sandri. Pneumatic cushion for any kind of shoe.
 356,426 (July 26). W. Strück. Solid tire with bedded cross wires.
 356,435 (July 24). A. Rattier. Pneumatic tire.
 356,443 (July 27). J. A. Goffin. Anti skid tire protector.
 356,663 (April 19). Mrs. Basch and S. Basch. Pneumatic tire.
 356,684 (August 4). Y. Clifford. Improvement in tires.
 356,707 (August 5). P. W. Pratt. Improvements in rubber heels for shoes.
 356,800 (August 10). Société Générale des Etablissements Bergouan et Cie. Method of attaching solid tires to metal rims.
 356,855 (July 26). L. H. Aloir. Puncture proof leather tread.
 356,874 (August 7). G. F. Butterfield. Tread made of leather, rubber or other substance.
 356,917 (August 12). F. J. Chary. Elastic tire.
 356,958 (August 17). Francioni et Paquet. Tire proof against punctures, rim cutting and skidding.
 356,985 (August 18). Ybertz et Merignoun. Elastic tire.
 357,010 (August 17). A. MacLean. Pneumatic tire protector.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsel, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

CHICLE is pronounced chick'-lee in the trade, ché-kla by Dorland's Medical Dictionary, and so as to rhyme with pickle by the Century Dictionary. It is not found in the regular pronouncing vocabulary in the Standard and nowhere by us in Webster's, so each of us may choose his own pronunciation of the word.—*Druggists' Circular*.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of December, 1905, and for five calendar years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
December, 1905 ..	\$ 115,957	\$ 206,442	\$ 211,349	\$ 533,748
January-November	1,066,804	1,185,420	2,619,526	4,871,750
Total	\$1,182,761	\$1,391,862	\$2,830,875	\$5,405,498
Total, 1904....	890,076	1,226,772	2,341,039	4,457,887
Total, 1903....	857,634	991,351	2,511,980	4,360,965
Total, 1902....	738,257	1,065,592	2,011,905	3,815,754
Total, 1901....	608,116	974,018	1,743,882	3,326,016

SHIPMENTS TO NON CONTIGUOUS TERRITORIES.

DESTINATION.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTALS.
<i>Alaska:</i>				
1903.....	\$32,351	\$ 88,331	\$17,248	\$137,930
1904.....	44,363	130,552	19,337	194,252
1905.....	74,846	168,063	29,431	272,340
<i>Hawaii:</i>				
1903.....	\$37,322	\$ 7,386	\$30,169	\$74,877
1904.....	29,439	12,036	34,089	75,564
1905.....	25,035	6,624	46,395	78,054
<i>Porto Rico:</i>				
1903.....	\$ 8,545	\$811	\$16,074	\$25,430
1904.....	8,776	269	16,814	25,859
1905.....	14,608	782	27,510	42,900
<i>Philippines:</i>				
1903.....	\$23,044	\$2,576	\$35,261	\$60,881
1904.....	36,826	7,684	42,444	86,954
1905.....	18,981	4,971	33,474	57,426
<i>Totals:</i>				
1903.....	\$101,262	\$ 99,104	\$ 98,752	\$299,118
1904.....	114,231	150,541	113,049	377,821
1905.....	133,470	180,440	136,810	450,720

THE FACTORY "BY SOME MADE FUN OF."

A REPORT of the Durango, (Colorado), board of trade says: "The rubber factory, talked of and by some made fun of, is here and seventeen expert machinists are installing \$350,000 worth of machinery, while the experimental farm of 1280 acres has been secured for the cultivation of the weed. The company will use the pulp, after the rubber has been extracted, in the manufacture of stock food, and the very worst of the leavings will be combined with nitroglycerine in the making of power. The cotton which grows around the crown of the plant will be shipped and made into shoddy wearing materials and the making of pillows." The report does not state whether the rubber in question will be natural or artificial.

Referring to the presence in Washington of Mr. E. C. Dunbar, the leading spirit of the Durango enterprise, a despatch to the *Denver Republican* says that he "has carried on a series of successful experiments in a small way and believes that with good government aid a valuable and extensive industry in the production of rubber might be established and maintained in Colorado." And an editorial writer in the *Denver paper* indulges in this shaft of humor:

There is no connection between the appeal for government aid for the rubber industry of Colorado and that of Banker Schiff of New York for an elastic currency.

NEW GOODS AND SPECIALTIES IN RUBBER.

THE CLEVELAND SOFT RUBBER RING.

THE brilliant lighting of our American cities is one of their characteristic features. In the larger cities certain streets at night are a perfect blaze of light, owing to the countless signs and decorations in white and colored electric lights. These displays are made

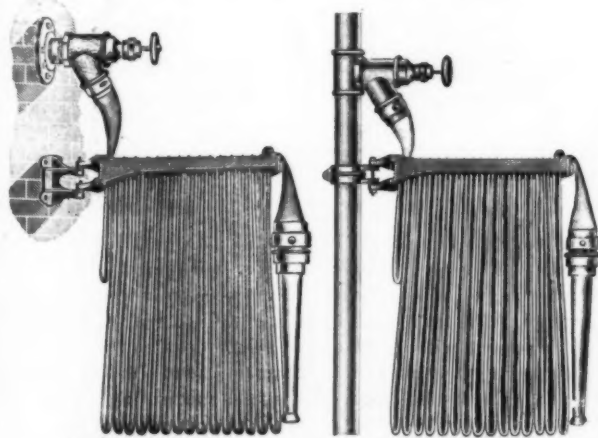


of numerous electric bulbs, which are not very expensive in themselves, but are often very hard to replace, when they burn out. Being out in all kinds of weather, water is apt to leak in through the joint, causing short circuits; or it is liable to freeze afterwards and injure the plaster in the joint, or do other damage. The

Cleveland soft rubber ring is designed to protect electric incandescent bulbs which are thus exposed to the weather. These rings are put over the bulb before it is screwed into the holder, and absolutely prevent dampness or anything from entering the joint, which it hermetically seals. They are no trouble to put on, and add considerably to the life of the bulb, besides preventing short circuits, which are such a prolific source of fires. The rings come in seven different sizes, to fit any style of lamp, and are made with a flat, round, square, shouldered, or elliptical section. The same company also make a good line of valve discs. [Cleveland Rubber Works of the Mechanical Rubber Co., Cleveland, Ohio.]

BOWES HOSE RACK.

THERE is always a market for a convenient and practical hose rack for factories, warehouses, stores, office buildings, apartment houses, and other structures where an effort is made to observe the ordinary precautions against fire losses. One of the newest things in that line is the Bowes hose rack, which is illustrated here in two styles of attachment. Be-



ATTACHED TO WALL.

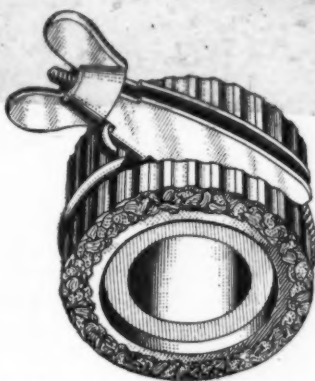
ATTACHED TO STAND PIPE.

sides its undoubted utility this rack has the added merit of being simple and comparatively inexpensive. Any hose rack is good, but some are better than others. It is to this

latter class that the Bowes properly belongs. It is a pin rack, and by a clever arrangement the pins are so placed that the pins are caught by a latch when the hose is payed out instead of falling to the floor. The accompanying illustrations show the rack affixed to the wall of a building, and also as attached to a standpipe. Enough pins are furnished so that the hose may be hung in loops about 24 inches long. It is important that when you reach the end of the hose to see that the hose goes over the next to the last wire, under the last wire and over the latch, which is then put in position. The hose is then ready for use. In case of emergency by seizing the nozzle and pulling on the hose the latch becomes detached and falls in a perpendicular position. The hose immediately pays off the rings or wires, which wires do not drop to the floor, but are caught by the latch. Patents have been applied for. [W. D. Allen Manufacturing Co., New York and Chicago.]

A NOVEL HOSE COUPLING.

A HOSE coupling that is made upon novel lines, and which has the merit of combining utility with economy, is the result of the inventive genius of Mr. B. Morgan, of



Newport, Rhode Island. Its distinctive feature consists of its being made in one piece and is adjustable to several sizes of hose, a point that will appeal to dealers as it enables them to materially reduce their stock. The Morgan hose coupling is especially adapted for motor boats and automobiles, where the need of such an

appliance usually is most urgent and where it is essential that it be adjusted quickly as well as easily. The smaller couplings are made with brass fittings and the larger ones with steel. A patent has been applied for.

HEALY LEATHER COVERED TIRE.

THIS tire, invented by Mr. Raymond Healy, is really a jacket and shoe of leather which may be adjusted to any pneumatic tire of standard make. The leather is made especially for the Healy tire and is tanned and prepared by a process which is also the invention of Mr. Healy. The peculiarity of the invention is that the leather is clinched under the rim, which makes it impossible for the leather to "peel" at the edges and prevents rim cutting. By taking the strain of the additional cover from the rim the tire is substantially strengthened. A leather tread attached to the leather tire cover is equipped with steel rivets which act as an effectual preventive of skidding and slipping, thus reducing to a very low



minimum the liability to puncture. During the two years the Healy tire has been on the market not a single puncture has been reported. One of the points of superiority claimed for the Healy tire is that the rivets affixed to the shoe are so arranged that they do not carry heat to the rubber part of the tire. The leather going clear to the end of the clinch bead, and the union of the leather and tire being perfect, the strength and durability of the whole are materially increased. A strong guarantee is given with each tire. [Healy Leather Tire Co., Nos. 88-90 Gold street, New York.]

BAILEY'S RUBBER EXERCISER.

A CHEAP and efficient exerciser for the back has just been brought out. Bailey's Rubber Exerciser is a light portable frame



36x20 inches, taking up no more room than a chair, and can be used in the bedroom. An exercise, similar to that of sawing wood, is gained by pushing downward a bar held by stout, elastic cords. This motion is recommended for its good effects upon the back, chest and abdomen. It is the exact opposite of rowing, calling on a set of muscles that are ordinarily hard to train up. It is referred to as being especially good for the stomach, bowels, and liver, curing indigestion, insomnia, and vertigo. Even where

such troubles are not felt, the Exerciser has a valuable effect in distributing the fat which tends to gather about the successful, middle aged waist. [C. J. Bailey & Co., No. 22 Boylston street, Boston.]

NOVELTIES IN LAWN SPRINKLERS.

THROUGH their New York branch, the W. D. Allen Manufacturing Co. (Chicago) will offer the Eastern trade this season for the first time, several novelties in lawn sprinklers and other rubber hose accessories. One of these is the Gibbs Spray Nozzle. The shut-off is positive, because it is made by a washer against the shoulder



MAYFLOWER.



OPEN.

OAKLAND.

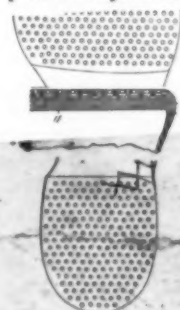
CLOSED.

at the base of the pipe. It is claimed that the Gibbs gives a greater variation of sprays than any other nozzle. The construction is simple, being made of a few parts, so it cannot easily get out of order. The "Mayflower" sprinkler is the latest addition to the Allen list of revolving lawn devices. It is a combination of the best features of the "Pluvius" and "Preston" sprinklers, which have been described in THE

INDIA RUBBER WORLD, with new features added. The Mayflower is an unusually small and graceful affair and does its work in a fashion that wins admiration from all users. A Pacific coast invention of note that is being exploited by the Allen company is the "Oakland" spray nozzle, which has already won a high place in popular favor. It throws a solid stream and a spray, but does not shut off. One of its advantages is that when the spray is in operation there is no back pressure on the hose. It may be used as a lawn sprinkler by setting it on the edge of a walk and allowing it to rest on the spray key.

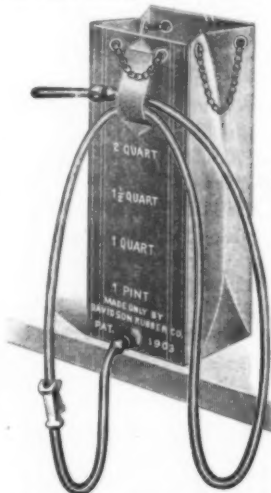
NEW ANTI-SLIP OVERSHOE SOLE.

A NOVEL anti-slip sole for rubber overshoes has been patented by Mr. Calvin T. Adams, of New York. The device consists of an outer rubber sole vulcanized on two thickness of canvas and studded with rivets which are driven through it and clinched by a machine made especially for the purpose. The heads of the rivets are normally below the surface of the rubber, but are brought into contact with the ground by the pressure of the foot in walking. Their utility as a slip preventive is emphasized on ice. It is obvious that the wearing quality of the sole is considerably enhanced by the rivets.

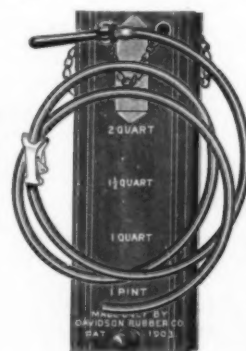


THE "WIDER" CLINICAL SYRINGE.

A FOLDING rubber bucket has a great many known uses, and the handy housewife, or a camping party can always discover new uses for one. The bucket shown in the cut was primarily intended for a clinical syringe, but many other sickroom



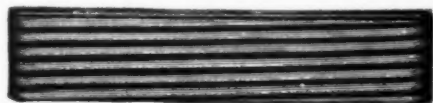
uses for it were soon discovered, a few of these being mentioned by its makers. As a syringe, it possesses many points of superiority over the ordinary fountain syringe. The front and back are stiff, so that when filled with water it will stand alone. The top also stands wide open, giving access to the contents for use of a thermometer, and for mixing a solution, or otherwise medicating the water to be injected. The open top also makes it easy to clean and dry, or sterilize. The tank also has chain handles, and a loop, through which the tubing can be coiled when not in use. The tubing is provided with a spring cut-off and several nozzles. The tank is also accurately graduated in pints



and quarts, up to four quarts, being made in two sizes, of two and four quarts, respectively. When a rubber cap instead of the tubing is put on the outlet, the tank becomes a bucket, which can be folded flat, and can be used for all the purposes to which any bucket can be put, though oily substances must not be put into them, of course. The great importance of rubber in surgical goods is well known, especially in the matter of syringes. Syringe making was, in fact, one of the first uses to which rubber was put, and over much of South America rubber is called "seringa" from this fact. [The Davidson Rubber Co., Boston.]

RUBBER BANDS AS BUSINESS GETTERS.

ONE of the strongest aids in selling goods is the arrangement of the goods themselves in a manner that will please the eye of the intending customer. This is a rule that applies to all commodities. Where it is easy to arrange an effective display of some lines of goods it is correspondingly hard in others. This is particularly the case with such small ware as stationery and office supplies. With that in view Eberhard Faber (New York) has designed a specially prepared rubber band which finds much favor because of



its beauty and adaptability to purposes of decoration. These bands are of the usual Eberhard Faber high quality, and differ from them only in being of two colors — red and black — instead of the customary dull grey. The colors are in pin stripes. The bands are put up in a style that gives to them a peculiar fitness for show purposes and adds to their value as a business getter. The sizes are exactly the same as the ordinary bands. Some other lines of goods made by the same firm are also produced in two colors as indicated in the illustrations.

HARD RUBBER BOWLING BALLS.

AN article which seems likely to cut something of a figure when the annual consumption of rubber is reckoned, is a bowling ball made of hard rubber. The rubber bowling ball can scarcely be called a new thing, but of late it is coming into increased use. The chief reason why it has not been taken up more generally by bowlers has been its cost. That obstacle has been in a measure overcome by the increasing scarcity and consequent high price of *lignum vitae*, from which wooden balls are made. It must be remembered that while the



initial cost of the rubber ball is greater, this ball is practically indestructible. Besides, the best wooden ball is liable to become split or "checked." And it is more or less subject to warping or it may be worn flat in spots. From any or all of those troubles the rubber ball is exempt. It is claimed for the hard rubber bowling ball that it is uniform in density and will not wear away in spots, as does the wooden ball; that it will always remain a true sphere no matter how much used, and will not require turning down to a new face; it has no grain, hence is not liable to chip and become rough and broken around the grip holes; and it will not injure the face of the finest alley, as it always presents a true face to the alley. The regulation ball is 27 inches in circumference and weighs 16 pounds, but lighter and smaller balls are made to order. [American Hard Rubber Co., New York.]

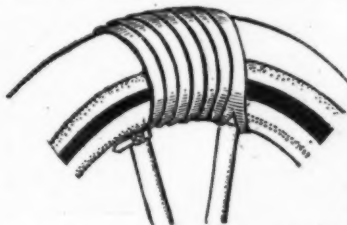
COMBINATION CUSHION CHAIR TIP.

THIS is a new idea in chair tips and is designed to take the place, under certain conditions, of the rubber tip. It is made of selected sole leather, reinforced with metal bushing. The leather comes in contact with the floor and consequently allows the chair to move freely without noise or scratching highest finished hardwood or marble floor. The metal bushing is forced into the hole of the leather tip and extends from the bottom of tip half way and is expanded at the top, which fastens it securely to the tip, and when the nail is inserted it allows the tip to have the full benefit of the felt cushion. The felt is elastic, practically like rubber. The company make also similar tips for crutches, chairs, and the like. [The Elastic Tip Co., Boston.]



A NEW EMERGENCY TIRE STRAP.

AN appliance that will afford immediate and satisfactory relief when the almost inevitable puncture comes along is a real boon to every user of pneumatic tires, whether he be snugly ensconced within the luxurious confines of an up-to-the-minute touring car or astride the somewhat more plebian bicycle. When



the dreaded moment arrives something must be done, and done quickly. It is to meet such emergencies promptly and efficaciously that the Automobile Tire Emergency Strap was designed. This strap is made of specially prepared waterproof leather. Its operation is simplicity itself. You have only to buckle one end to a spoke, wind the strap tightly around the punctured section of the tire, fasten the loose end of the strap to the next spoke, blow up your tire and away you go. The strap used in this manner is referred to as being good for 100 miles over ordinary roads. [Leather Tire Goods Co., Newton Upper Falls, Massachusetts.]

THE M'INTYRE AIR CUSHION SHOE.

A BOON to people afflicted with sore or tender feet is an air cushion shoe called the McIntyre, of which John Wana-

maker has been appointed sole selling agent for New York city. This shoe is padded on the inner sole with a layer of sponge rubber, to protect the foot from jars. The perforations, having the function of air cells, facilitate ventilation. The device acts as an air pump. The step compresses the cells and forms a vacuum; when the foot is lifted the cells expand and fill with air which circulates about the foot and is expelled with the next step. The advantage of a rubber cushion over a felt cushion is that it is impervious to moisture and that it returns to normal after being compressed. The number of cells in the air cushion of a No. 8 man's shoe is, approximately, 87,000. The cushion is encased in a turned in and stitched jacket of kid leather which holds the cushion in place. This cushion sole is thicker at the heel than at the forepart, the former being about a quarter inch and the latter about one-eighth. The McIntyre Air Cushion shoe is made in men's and women's styles and sizes and sells for \$5 a pair.

"SO-LITE" LADIES' POCKET RUBBERS.

THE goods illustrated in the cuts herewith—made by the dipping process—are about one-third the weight of ordinary rubbers of the same style. In addition to the light weight, which is desirable, one advantage of these goods is that a pair of them can be rolled up in a little waterproof bag and carried in the pocket or a shopping bag. They are specially desirable for ladies who want a rubber while shopping or traveling which need not be worn all the time, but which



can be taken off whenever desired and carried almost as easily as a pair of gloves. These goods are manufactured for the proprietors by the Goodyear's India Rubber Glove Manufacturing Co. They are meant to be retailed at 75 cents and specially liberal terms are offered dealers to facilitate the introduction of the goods. These rubbers are made in sizes from 1 to 8, in three widths, and for narrow and wide toes. [The "So-Lite" Rubber Co., Rochester, New York.]

ONE of the trade novelties that is at the same time dainty, attractive and serviceable is a celluloid postage stamp and court plaster case sent out by The Dermatine Co., Limited (London).

RESTORING COLOR OF RUBBER CORKS.

[FROM "THE DRUGGISTS' CIRCULAR," NEW YORK.]

J. L., New York, writes: "Please publish in the CIRCULAR a formula for putting a coating on rubber corks so they will look like new, as I had about 150 gross in my cellar which was flooded by the high water last spring. They were in the water about ten days, and after they dried they were all dark."

We sought information on the subject from the Tyer Rubber Co., which was kind enough to write as follows: "We presume the corks are only stained by the action of the water. If so, in all probability, if they were 'tumbled' (that is, put in a revolving barrel such as all rubber manufacturers have) and allowed to stay a short time either with soap and water or possibly with a little grinding substance, it would take off this stain. We of course cannot tell whether the stopple itself is of dark material, and the original whiteness was due to the sulphur, or not. In this case, it is probable that they would not come back to the original whiteness, although undoubtedly it would take off a good deal of the dark color. We could give a better opinion on the matter if we saw samples of the stopples. If your customer's quantity, however, was a small one, we should doubt whether it would pay to do much with them."

In case the darkening is not more than surface deep, the New York Belting and Packing Co. thinks perhaps boiling the corks in potash may restore their color.

THE London Times, in a report on the troubles at Moscow, resulting in the execution of several revolutionaries on January 6, says: The manager and assistant manager of the rubber works have been arrested. "Let me take my clothes," pleaded the manager. "You will not need them," replied the officer. The assistant manager is an Austrian.

THE United States consul at Callao, Mr. Gottschalk, in a report on contract labor in Peru, says that such system does not prevail in the department of Loreto, the region which supplies a large part of the rubber exported through Iquitos. The work is done chiefly by independent rubber cutters who are often *habilitado* ("staked") by commercial firms at Iquitos and Puerto Bermudez who buy their products.

COLORADO RUBBER.—The supply of rubber news from Colorado is unflinching. The production of a wonderful supply of rubber from "rabbit weed"—the same that killed father's prize ram—is always about to begin. The Colorado Springs Telegraph now lets out a secret: "Within a few weeks the first factory in the state for the manufacture of rubber from the recently discovered Colorado rubber plant will be in operation. . . . The factory is at Durango, and represents an expenditure of \$75,000." The only trouble about the Colorado news is that it never varies; for two years the rubber factory has always been ready "next week"—with no more fixed date.

MR. R. P. SKINNER, the United States consul at Marseilles, who recently made an expedition to Abyssinia, reports favorably in regard to commercial openings there. He reports the granting of an imperial concession to the Kordofan and Khartoum Co., in the province of Kaffa, one of the purposes of which is to grow rubber.

NEWS OF THE AMERICAN RUBBER TRADE.

A RUBBER BANQUET IN SAN FRANCISCO.

THE Mechanical Rubber Goods Association of the Pacific Coast gave a banquet in honor of Mr. Amadee Spadone, of New York, at the California Hotel in San Francisco on the evening of February 9. The banquet was presided over by Mr. Joseph V. Selby, the president of the association, and every rubber company on the Pacific coast was represented. Mr. Spadone made some very interesting remarks, pointing out the dangers of associations of this kind and some of the trouble that had been experienced by the Eastern associations of the same kind, and congratulated this association on the unity and harmony prevailing. Mr. William J. Gorham, the vice president of the association, answered his remarks in a very happy way, welcoming the guest to the Pacific coast and hoping the association would have the pleasure of having him as its guest again, and assuring him that the members dwelt together in unity and harmony at all times as well as at the banquet, and that all realized it was a benefit to all to belong to the organization and that they had already corrected many of the small abuses of the trade. Toasts were responded to by Mr. Selby, who is the Western manager of the Boston Woven Hose and Rubber Co.; by Mr. W. F. Bowers, president of the Bowers Rubber Co.; Mr. A. C. Bates, who is retiring as branch manager of the Gutta Percha and Rubber Manufacturing Co. to go into business for himself, and Mr. C. H. Chase. Mr. Bates, who was one of the charter members of the association, was made an honorary member. The meeting adjourned with a vote of thanks to Mr. Spadone for the honor and pleasure of his company. Mr. Spadone's visit to the Pacific coast was in connection with business of the Gutta Percha and Rubber Manufacturing Co., of which he is the president, and consumed practically the whole of the past month. He was accompanied by his son, Mr. Walter W. Spadone, superintendent of the company's factory. Mr. Bates, the retiring manager of the San Francisco branch, will be succeeded by Martine & Brown—two gentlemen who throughout their business career have been connected with the Gutta Percha company, Mr. Martine in the San Francisco store, and Mr. Brown at Portland. Both will now make their headquarters at the San Francisco house.

THE MITZEL RUBBER CO (CARROLLTON, OHIO).

At the annual meeting of the Mitzel Rubber Co. the officers were reelected: H. F. Mitzel, president, treasurer, and general manager; R. A. Mitzel, vice president; George N. Eby, secretary. The additional directors are L. D. Stookon, W. L. Handley, and J. R. William. A good business for the year was reported, and the cash dividend of 12 per cent. declared. The factory at Carrollton has been in existence for a little more than a year, and the company are much gratified at the result of moving from Akron. The company have purchased additional land on which they purpose erecting this spring a new two story building, 40 x 250 feet. They have added a number of presses during the year, and have just installed a new tubing machine and are constantly adding new lines of products. For instance, they are going more fully into hot water bottles and syringes.

SEAMLESS RUBBER CO—ANNUAL ELECTION.

At the annual meeting of the shareholders of the Seamless Rubber Co. (New Haven, Connecticut) on January 26 the following were elected directors: Charles I. Thayer, Boston; A. H. Alden and Mrs. Mabel C. Alden, Larchmont, New York; and George M. Allerton, Waterbury, Conn. Following the meeting the directors organized and elected Mr. Thayer president and Mr. Allerton treasurer, and Ernest D. Steer, of New Haven, secretary. At this meeting the office of general manager was abolished and the resignation of Mr. E. E. Mendes, who had filled that position, was accepted.

PRESENTATION TO COMMODORE BENEDICT.

A DINNER in honor of Commodore E. C. Benedict was given by Colonel Samuel P. Colt, president of the United States Rubber Co., at the Metropolitan Club, in New York, on the evening of January 30, being attended by 48 persons, including a number of directors of the United States company. The occasion was the first anniversary of the return to New York of the yacht *Virginia* from its cruise on the Amazon, when Commodore Benedict took a party of friends on an extended visit to the rubber regions. After an opening speech by Colonel Colt the surprise of the evening was the presentation to Commodore Benedict of a gold cup, on behalf of the United States Rubber Co. The cup is understood to have cost \$5000, and is ornamented with two panels representing scenes on the voyage of the *Virginia*. The presentation speech was made by Mr. Francis Lynde Stetson. After a response by Commodore Benedict and a speech by Mr. William M. Ivins, a series of about 100 stereopticon views, illustrating the itinerary of the *Virginia*, was shown, with descriptive remarks by Mr. Richard Arthur, who was one of the *Virginia* party, and who has published a history of the trip. A letter was read from Mr. Grover Cleveland, late president of the United States, regretting his ability to be present.

NEW INCORPORATIONS.

SALISBURY Tire Co., January 23, 1906, under the Michigan laws; capital authorized \$100,000. Incorporators: David R. and Oliver B. Salisbury, Owosso, Michigan; Edwin P. Waldron, Saginaw, Mich., and others. The company will manufacture and market a leather tire invented by the Messrs. Salisbury—a tire embodying no rubber except the air tube. The factory will be at Owosso; Robert G. Steel is secretary and treasurer.

=J. P. Devine Co., February 1, 1906, under New York laws; capital, \$100,000. Directors: Joseph P. Devine, William Strohn, and William P. Kemp. Office: No. 314 Mooney-Brisbane building, Buffalo, New York. This is a reorganization of the business of J. P. Devine, dealer in vacuum drying and similar apparatus, including the Emil Passburg drying chambers for rubber. The Passburg patent rights in America have been made over to the new company and Mr. Strohn, who has been and is associated with the firm of Emil Passburg (Berlin) from its inception, is the vice president of the new company.

=Imperial Waterproof Co., January 25, 1906, under New

York laws; capital authorized, \$100,000. Directors: C. M. Willard, Rutland, Vermont; A. W. Hyde and E. J. Newell, Buffalo, N. Y. The object is the manufacture of waterproof goods under a secret process discovered by Mr. Willard, which is described as being adapted to all grades of cloth, leaving the fabric flexible and not lessening its durability; without stickiness or unpleasant odors, and absolutely impervious to wind or water. Mr. Willard writes: "We are installing a large plant at Buffalo and have abundant capital to meet the demand." The waterproofing process has been mentioned hitherto in THE INDIA RUBBER WORLD.

=Empire Automobile Tire Co. (Trenton, N. J.), January 17, 1906, under New Jersey laws; capital, \$50,000. Incorporators: C. Edward Murray, Charles H. Baker, and A. Boyd Cornell, all of Trenton.

=Michelin Products Selling Co. (New York), January 16, 1906, under New York laws; capital, \$100,000. Incorporators: William F. Donovan, Percival W. Logan, and Frank P. Reilly. The management is in the hands of E. D. Winans, formerly in charge of the Michelin Tire American Agency, Inc. (New York).

TRADE NEWS NOTES.

AMONG the improvements made recently at the factory of the National India Rubber Co. (Bristol, Rhode Island) is the removal of the insulated wire department into larger quarters, in a different part of the premises, where a 125 H.P. Armington & Sims engine has been installed. Eighty new wire braiders have been installed, and there are orders enough in hand for wire, it is understood, to keep the plant busy for several months to come.

=The reclaiming plant of the Stockton Rubber Co. (Stockton, New Jersey) was damaged by a fire on January 20, after the works were shut down, caused by the overheating of a flue. The loss was covered by insurance, which was promptly adjusted, and the factory was working again by February 5.

=At the annual meeting of The Combination Rubber Manufacturing Co. (Bloomfield, New Jersey), in January, E. D. Cook was elected president, E. H. Garcin, vice president, William H. Serviss, treasurer, and W. L. Blodgett, secretary.

=Mr. R. J. Younge has resigned as general secretary of the Canadian Rubber Manufacturers' Association to accept an important executive position in the general sales department of the Canadian Rubber Co. of Montreal, Limited. His new connection dates from March 1, and no doubt he will be an important acquisition to their already strong selling force.

=Apsley Rubber Co. (Hudson, Massachusetts) are building a six story addition to their factory, 160 x 60 feet, to be used for additional storage room much needed, and other room necessary for their increasing business. Work on the new addition was begun on January 23. The building will be erected on the east end of the main factory, and extend toward Cottage street.

=Mr. John F. Ives, who has been placed in charge of the textile department at the factory of the Gutta-Percha and Rubber Manufacturing Co. (New York), has been identified for several years with improvements in fabrics in connection with mechanical rubber goods, including tire fabrics.

=The directors of the Rubber Goods Manufacturing Co. on February 15 prepared the twenty-eighth regular quarterly dividend of 1 3/4 per cent. on the preferred shares of the

holders of out of earnings, payable March 15, 1906, to shareholders of record on March 10.

=A recently published report of the incorporation of the "Hartford Rubber Works" in California related merely to the filing with the secretary of state at Sacramento of the original charter of the Hartford Rubber Works Co. (Hartford, Connecticut), to comply with a legal formality connected with their doing business in California.

=The Todd Rubber Co. has been organized at New Haven, Connecticut, to conduct a general rubber goods business, but to pay particular attention to the marketing of solid cushion and automobile tires in the state of Connecticut. The president and treasurer is Eyer J. Todd, who recently resigned as secretary of the Springfield Rubber Tire Co. (New Haven), to organize the new company. They have the exclusive agency for Connecticut of the Kelly-Springfield tires.

=The directors of the Boston Woven Hose and Rubber Co. have declared a semi-annual dividend of \$3 per share on the common stock, payable March 15, 1906, to stockholders of record March 5.

=The "Everstick" invisible rubber continues to be a sensation in the shoe trade, and Mr. William Morse, president of the Merchants' Rubber Co. (New York), says that the sales are running into the millions of pairs annually. These goods are also in wide demand in Canada.

=The Aiton Machine Co. No. 126 Liberty street, New York, have issued their Bulletin No. 2, describing their 8 drum Stranding Machine. This machine carries spools 12" x 8" at a speed of 200 RPM. The entire machine is mounted on a stiff bed plate and is equipped throughout with cut gearing. Further details will be cheerfully given upon request at the company's office.

=What is probably the largest single order for rubber tires by an automobile manufacturer was placed recently by the Ford Motor Co. with the Firestone Tire and Rubber Co. (Akron, Ohio). The order was for 8000 tires, to be used on Ford runabouts: 500 sets for April delivery, 1000 sets for May, and 500 for June. The order was booked by Mr. E. E. McMasters, manager of the Detroit branch of the Firestone company.

=Elkhart Rubber Works (Elkhart, Indiana), February 3, 1906, under Indiana laws; capital, \$50,000. Directors: Harry N. Shepherd, Addison L. Gardner, and Randall W. Burns. Mr. Shepherd is a Chicago man and New York parties are reported to be interested. It is understood that automobile tires and mechanical rubber goods will be made.

=At the Anglo-Malay Rubber Co.'s recent statutory meeting of shareholders, in London, it was announced that the managers estimate for the present year was 50,000 pounds of dry rubber and 2000 hundred weights of coffee, the rubber to cost about 1 shilling per pound, exclusive of some expenditure necessary to bring the estate up to a good standard.

=The Buffalo Rubber Manufacturing Co. (Buffalo, New York) have removed into their new plant and office, at Sussex avenue and Erie railway, where they have about 30,000 square feet of space and double their former capacity.

=Mr. R. O. Price, general manager of the Plantacion Solo-Suchil, in Mexico, is so well impressed with the prospective advantages of spiral tapping that he will soon experiment with the new method on several thousand rubber trees which he thinks may show good results.

=The suit of the Preston Woven Hose and Tire Co. against six members of the board of trade of Marlboro, Massachusetts, for money promised to induce him to remove his factory there from Everett, Mass., but only a portion of which was paid, on account of the factory suspending operations, has been settled by the court entering a judgment for neither party. J. F. Preston, who organized the business, was last reported in California.

=In reply to a query in the February number of THE INDIA RUBBER WORLD, Mr. Oton Katterfeldt, of Gomez Palacio, Mexico, writes that for about a year he has been making monthly shipments of Guayule plants to European rubber manufacturers. He says he believes himself to be the only explorer of the Guayule plant in Mexico.

=Speaking generally, it is a little late for calendars. But it is always timely enough to issue such a one as that being sent out by William F. Mayo & Co. (Boston). It is neat in design, convenient in size, and especially attractive in appearance, since it displays the portraits of the head of the house and his two sons, George H. Mayo and William H. Mayo.

=A final meeting of the creditors of The Alden Rubber Co. was held on February 15, when the trustee, F. B. Burch, was discharged.

=A steam hose that really does the work is that appropriately named "Long Life" hose. It is claimed for it that it is the best moderate priced steam hose anywhere. It is made by the Whitehead Brothers Rubber Co., Trenton, New Jersey.

=The Hadley Cement Co. (Lynn, Massachusetts), are about to open a branch factory at Lachine, Canada, to supply the European market, the purpose being to escape the duties on goods exported from the United States.

=The reported fire at the works of The Republic Rubber Co. (Youngstown, Ohio) on February 10 only damaged a minor building, used as a box factory and carpenter shop to the extent of \$1000. It will be rebuilt on a larger scale.

=Electric Rubber Co., January 31, 1906, under New York laws; capital, \$10,000. Directors: Delmar D. Martin, James H. George, Fred E. Evans, Charles H. George, and W. J. Conklin. The New York-Broadway Rubber Tire Co., No. 253 West Forty-seventh street, New York, with D. D. Martin manager, has been converted into a selling agency for the tires of the Electric Rubber Manufacturing Co. (Rutherford, New Jersey), and the name changed as above. Mr. Martin will be in charge, at the old location.

=The National India Rubber Co. (Bristol, Rhode Island) are manufacturing this year larger quantities of their patented 500 foot length garden hose than ever before. This hose is furnished in medium and high grades only, and is shipped on reels in order that it can be conveniently handled by the dealer. The particular advantage of this long length hose has over the regular 50 foot length lies in the fact that any length of hose up to 500 feet can be furnished a customer without waste and without the use of couplings. This concern also manufactures a large line of water, steam, brewers, and air drill hose.

=There are many people who are firmly convinced that Alfred Calmon's "Long Life" rubber shoe, which is a Hamburg, Germany, product, not only amply justifies its name, but that it also is so delightfully elastic and comfortable that it conduces to the longevity of the lucky wearer.

HASKELL GOLF BALL PATENT AGAIN SUSTAINED.

By a decision of the United States circuit court for the southern district of New York, filed on February 3, the Haskell Golf Ball Co. score a victory over the Perfect Golf Ball Co. The decision not only upholds the validity of the Haskell patent, but it also finds that the defendants were guilty of infringement and grants the complainant's petition for an injunction. The Perfect Golf Ball Co. are also ordered to render an accounting of the business done by them. In the Haskell ball the core is wound with fine rubber thread, the whole being covered with a hard gutta percha casing. The ball made by the Perfect Golf Ball Co. has identically the same core and casing, but instead of a winding of rubber thread, a rubber band is stretched as it is wound until it is almost as narrow and thin as a thread. The court holds that this rubber band is substantially a thread since it is drawn to threadlike proportions in the winding process, so as to constitute infringement of the Haskell patent.

The Perfect Golf Ball Co. was incorporated September 29, 1903, under Maine laws, with \$1,000,000 capital authorized. The president was Eleazar Kempshall, who has the distinction of having had more golf ball patents issued to him than to any one else. Mr. Kempshall had previously been at the head of the Kempshall Manufacturing Co., who were sued for infringement by the Haskell Golf Ball Co., the suit being settled by an agreement under which the Kempshall company have since paid a royalty. During the past month the Globe Lithographing Co. (New York) secured a judgment against the Perfect Golf Ball Co., but when a deputy sheriff went to their office, No. 100 Reade street, he was unable to find any property to attach.

TO MAKE SYNTHETIC RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We take pleasure in informing you that we have made arrangements with Mr. George E. Heyl-Dia to manufacture all his synthetic and crude rubber products, and would ask you to kindly make a note of this in your paper. Yours truly,
PARA RECOVERY CO.

Bayonne, N. J., February 15, 1906.

PERSONAL MENTION.

MR. ELLIOT M. HENDERSON, vice president of the Manhattan Rubber Manufacturing Co. (New York), is back from abroad his trip having embraced the larger European centers, followed by a voyage to Cape Town, South Africa, and a return up the East Coast to Aden and then home. Now the president and general manager of the company, Mr. A. F. Townsend steps aboard a steamer and goes to Jamaica for a month's rest. He is accompanied by his brother Edward, who is one of the directors of the company, and by Mr. True, one of the selling force.

=At the annual banquet of the Massachusetts Automobile Club, held in their elegant club house on Boylston street, Boston, on the evening of February 21, the Editor of THE INDIA RUBBER WORLD spoke on "Tires and Motoring." There were about 200 present.

=THE INDIA RUBBER WORLD joins with the rest of the host interested in the rubber trade, in extending congratulations to Miss Ida Pauline Towner, whose marriage to Mr. William Kirby Everingham took place on February 27. The bride is the daughter of Mr. Harry N. Towner of Towner & Co. (Memphis, Tennessee), one of the largest jobbing firms in the rubber trade.

MISHAWAKA WOOLEN MANUFACTURING CO.

FOLLOWING reports published in the West of a change of control of the Mishawaka Woolen Manufacturing Co. (Mishawaka, Indiana), rumors became current in the East that this important concern would be operated in future by the United States Rubber Co. THE INDIA RUBBER WORLD is advised from Mishawaka: "There have been some changes in stockholdings, but the control remains substantially where it always has been. Directors the same except Mr. A. D. Warner takes the place of Mr. Marvin Campbell on the board, and general conduct and management of the business remain exactly as heretofore." Colonel Samuel P. Colt, president of the United States Rubber Co., when applied to at Bristol, Rhode Island, by THE INDIA RUBBER WORLD, stated: "The United States Rubber Co. has not obtained control of the Mishawaka company. You may say, however, that the two companies are interested in common in the purchase of crude rubber, and that a friendly spirit exists. We are wholesome business rivals, but we are not bitter antagonists. The United States company has not purchased or does not control the Mishawaka company and reports to this effect are unfounded." The directors of the company are E. A. Saunders, president; E. G. Eberhart, vice president and general manager; F. G. Eberhart, secretary and superintendent; A. D. Warner, treasurer; J. M. Studebaker, George M. Studebaker, Clement Studebaker, Jr., F. S. Fish.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED STATES RUBBER CO.:

DATES.	Common.			Preferred.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Jan. 20	30,250	57	54½	6,271	115	112½
Week ending Jan. 27	41,955	58½	55	5,100	114½	112½
Week ending Feb. 3	19,230	55½	51½	4,019	112½	109½
Week ending Feb. 10	7,525	54	51½	2,746	110½	109½
Week ending Feb. 17	9,800	52½	49½	1,800	110¼	108½
Week ending Feb. 24	7,140	51	49	800	109½	108

SECOND PREFERRED.

Week ending—	Jan. 20.	Jan. 27.	Feb. 3	Feb. 10.	Feb. 17.	Feb. 24.
Sales...	6,000	6,30	2,385	3,350	1,000	860
High ..	87½	87½	83¼	82	81½	81
Low ...	86¼	84½	81	79½	79¼	79¾

During the week ending January 20 a sale of 100 shares of Rubber goods preferred was made at 106¼.

CONSOLIDATED COTTON DUCK CO

At a meeting of the Consolidated Cotton Duck Co., in Baltimore, on February 19, a dividend of 3 per cent. on the preferred stock was declared for the six months ending December 31, payable April 2. It was stated that the income had amounted to \$4,697,180, with net earnings of \$516,675. The Consolidated Cotton Duck Co. have acquired the United States Cotton Duck Corporation and the Mount Vernon-Woodberry Cotton Duck Co., and have arranged to acquire all the stock of the J. Spencer Turner Co. (New York), which will hereafter dispose of all the products of the Consolidated company. The new company has no bonded debt of its own, and has \$6,000,000 of 6 per cent. cumulative preferred stock and \$7,000,000 of common stock. Through the exchange last year of securities of various companies in interest a capitalization of \$36,670,000 has been converted into \$21,470,000. The total value of the mill properties of the Consolidated Cotton Duck Co. is given at about \$16,000,000, exclusive of \$1,000,000 for additional machinery recently installed.

STARTING in with three excellent grades of reclaimed rubber the Eastern Reclaimed Rubber Co., with offices in the World building, New York, and factory in Brooklyn, are bidding well for the attention of the trade. The grades mentioned are Conquerer, Viking, and Regal, are made of shoes and look exceeding well. A specialty of the new company will also be the manufacture of reclaimed rubber to specification.

THE CINCINNATI RUBBER MANUFACTURING CO. (Cincinnati, Ohio), in issuing their Catalogue A, of Mechanical Rubber Goods, call attention to the fact that theirs is not exactly a new concern, having been incorporated to purchase the extensive rubber business formerly owned by the Whitman & Barnes Manufacturing Co. (Akron), retaining the same management and working force, with such additions as are necessary for an enlarged business. The catalogue embraces a very full line of mechanical goods and molded rubber specialties. [5¼" × 7¾." 96 pages.]

THE Laurel Rubber Co. (No. 556 West Twenty-fifth street, New York) intend moving their factory about May 1 to Garfield, New Jersey. Arthur Dyer is now president of the company, C. E. Wickers secretary and treasurer, and F. A. Cigol superintendent.

AN INTERESTING USE FOR RUBBER is for the shipping of fulminate of mercury. This, as many know to their sorrow, is extremely explosive and exceedingly sensitive to shock. It is therefore shipped in paste form, in high grade bags made of almost pure rubber. These bags hold about a gallon each and are tied at the mouth with a string and put in a can of water; the can in turn is packed in the middle of a cask and surrounded by elastic packing.

INDIA-RUBBER bands have their multifarious uses, but one of them is not to go around electrotype plates. The sulphur in the rubber acts upon the copper in such a way that in time the copper is corroded and the electrotype's usefulness is at an end. A simple lesson that it has cost much money to learn.

THE Banigan Rubber Co., of Providence, R. I., is now distributing to the trade a very unique piece of advertising in the shape of a bronze Medallion. It is 12 inches in diameter, lithographed in rich green tones, with lettering and trade-mark of the well known "Banigan Lion" in gold bronze. The medallion is made of metal and is heavily embossed, bringing out in bold relief the trade-mark, and making a very attractive ornament for a store or window. Your jobber will supply you and your trade will increase if you keep the medallion in sight.

HAVE you seen the new panel being distributed by the American Rubber Co., of Boston, Mass? It is a companion piece to the "American Girl" which was so popular last year—same size, but an entirely different color scheme. This is a study in brown, being a reproduction of a pastel drawing by a well known artist, and shows the "American Girl" in front of the famous Flat Iron Building in New York. It is very attractive and should be in every retailer's window that sells "American" Rubbers.

ALBERT V. W. TALLMAN has severed his connection with Robinson & Tallman and established himself as a broker in India-rubber at Nos. 54-56 Stone street, New York.

THE EDITOR'S BOOK TABLE.

TEN THOUSAND MILES IN A YACHT ROUND THE WEST INDIES AND Up the Amazon. By Richard Arthur. Introduction by William M. Ivins. New York: E. P. Dutton & Co. [Cloth, 12 mo. Pp. 253. Price \$2.]

A BOOK on the Amazon region, by a competent observer, is so rare that the appearance of a new one deserves notice for this reason alone, but when it possesses the exceptional charm of Mr. Arthur's little work, the reviewer is tempted to linger long over it. Its *raison d'être* is to chronicle the history of a yacht cruise which Mr. Ivins, in his introduction—and one may be pardoned for referring to his riper experience in the regions described than almost any other writer who has visited the Great River—calls "one of the rarest incidents in the lives of several of a party of close friends, with some of whom the shadows are already beginning to grow long." The delights of the cruise of the *Virginia*, with Commodore Benedict as host, necessarily were confined to very few, but they will now be shared by all who may be so fortunate as to read the impressionist sketches in which our author has word-pictured, not merely the wonderful Amazon country, but the lands and islands at which the *Virginia* touched in going and coming between Manáos and New York. The book gives no impression of being intended to afford information, but most readers will finish its perusal with a sense of having become aware of a hitherto undiscovered country. The *Virginia's* cruise was not without a commercial side, for everybody in the party was interested in rubber, which, as Mr. Arthur puts it, "is the material basis of practically the whole human life of the Amazon valley." But the author's written descriptions, and the wealth of pictorial illustrations bring out strikingly the many beauties and wonders of the greatest of rivers, and of the South American land, "where it seemed always afternoon." To quote Mr. Ivins again, those who have known the tropics can ever after feel the South a-calling, as Kipling did the East. As for Mr. Arthur, THE INDIA RUBBER WORLD hopes that the success of his first book will serve to keep him long in the field of authorship.

MODERN MACHINE SHOP CONSTRUCTION, EQUIPMENT AND Management. By Oscar E. Perrigo, M. E. New York: The Norman W. Henley Publishing Co. 1906. [Cloth. Quarto. Pp. 343. Price \$3.]

WHILE this is a comprehensive and practical treatise on the economical building, efficient equipment, and successful management of a machine shop, it is just as applicable to rubber factories or any other manufacturing establishments. It describes and illustrates a most simple and efficient time and cost system and treats at length of other details that are equally important to all those concerned in the erection, equipment or management of any large manufacturing or industrial plant and is of equal value and interest to the employés of such establishments. The book is illustrated with 200 drawings made especially for this work by the author.

MATERIALIENKUNDE FÜR DEN KAUSCHUK-TECHNIKER. EIN Hand- und Nachschlagebuch. Bearbeitet von Richard Marzahn, dipl. Hutteningenieur-Chemiker. Dresden: Steinkopff & Springer. 1906. [Cloth, 8 vo. Pp. [6] + 416. Price 13.50 marks.]

THIS volume consists of a series of notes intended to be of practical value in the rubber and allied industries, prepared by a technical expert and presented under an alphabetical arrangement of topics. This material has been appearing for some time past in the periodical issues of *Gummi-Zeitung*, and it now appears that the author is Mr. Richard Marzahn, a chemical engineer of standing in Dresden. In a measure

the nature and the arrangement of the material in this book suggests Mr. Pearson's "Crude Rubber and Compounding Ingredients." One difference however, is that fewer materials are treated and these at greater length, and somewhat in more technical style, so far as chemistry is concerned. Another point which distinguishes Marzahn's book is its inclusion of various materials which, while they may be called for in connection with rubber goods, have not hitherto usually been treated in technical works on rubber. For instance, 6 pages are devoted to asbestos, 3 to asphalt, 2 to aluminum, 3 to camphor, 2 to cotton, and 2½ to silk. The style in which the book is got up is attractive and it appears well adapted for a ready reference book.

REPORT ON RUBBER IN THE GOLD COAST. BY W. H. JOHNSON F. L. S., director of agriculture. [Accra] Gold Coast: Government Printing Press. 1905. [8 vo. Pp. 15].

REPORT UPON THE BOTANICAL AND AGRICULTURAL DEPARTMENT [Gold Coast Colony] for the Year 1904, by W. H. Johnson, director of agriculture. London: Waterlow & Sons, Limited. 1905. [Folio Pp. 25.]

MR. JOHNSON, whose interest in promoting the culture of rubber led him to prepare a book on "The Cultivation and Preparation of Para Rubber", which was reviewed in these columns a few months ago, continues to devote no small part of his energies to stimulating the interest in rubber culture in the Gold Coast Colony (West Africa), and the encouraging results, with *Hevea* and *Funtumia* species, are detailed in his official reports.

IN CURRENT PERIODICALS.

KAUSCHUKKULTUR in Deli. By Kurt Basse. [A study of progress in rubber planting in northeastern Sumatra, particularly of *Ficus elastica*.]—*Der Tropenpflanzer*, Berlin, X-2 (February, 1906). Pp. 88 106.

Einiges über *Landolphia*. By John Booth. [A summary of facts regarding this genus.]—*Der Tropenpflanzer*, Berlin. IX-12 (December, 1905). Ph. 712-716.

* * *

THE London *India-Rubber Journal* has issued its sixth annual "Diary and Year Book," containing pages for memoranda for each business day during 1906, together with a printed section containing much trade and statistical data of use to the rubber branch in Great Britain, conveniently arranged for reference. The yearly editions of this work have shown continuous improvement and the publishers express their pleasure, at the steady growth in the appreciation shown by their patrons.

FRENCH BUY ENGLISH OILCLOTH.

CONSUL MURPHY, of Bordeaux, responds to a letter from South Carolina requesting information in regard to the manufacture of table oilcloth and the extent of its use in the Bordeaux district. He replies:

"There is not a single manufactory of table oilcloth in the ten departments of France within the jurisdiction of this consulate. The only oilcloth factory in France of any importance is in the Department of Seine-Inferieure. The use of table oilcloth is, however, almost universal throughout the south of France, but whether American manufacturers would be able to compete successfully with the English firms who largely control the market is a question I am unable to answer in the absence of full information respecting prices and grades. In my inquiries respecting this matter among the leading houses in Bordeaux selling this particular line of goods I find that the firm of James Williamson & Sons, of Lancaster, England, seems to be able to control the French market for table oilcloths and to establish prices."

REVIEW OF THE CRUDE RUBBER MARKET.

PRICES have been well maintained during the month following our last report, in spite of the exceptionally heavy receipts at primary markets. Present quotations remain as last reported for first grades of Pará, with a slight advance on coarse Pará and throughout the list of Africans and Centrals.

January witnessed larger entries of rubber at Pará than any previous month in the history of the trade—5710 tons. The record before had been 5000 tons, in March, 1905. Exports from the Amazon were also large during January:

To United States.....	kilos	2,075,242
To Great Britain.....		1,885,738
To Continental Europe.....		793,044

Total..... 4,754,024

Total arrivals at Pará (including Caucho) for the first eight months of four crop seasons have been:

Tons.....	1902-03.	1903-04.	1904-05.	1905-06.
	19,520	21,510	22,210	a 23,950

[a—To February 27.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on February 28—the current date:

PARÁ.	March 1, '05.	February 1, '06	February 28.
Islands, fine, new.....	125@126	122@123	122@123
Islands, fine, old.....	none here	none here	none here
Upriver, fine, new.....	128@129	126@127	126@127
Upriver, fine, old.....	none here	none here	none here
Islands, coarse, new.....	75@ 76	73@ 74	73½@ 74
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	94@ 95	93@ 94	93½@ 94
Upriver, coarse, old.....	none here	none here	none here
Caucho (Peruvian) sheet.....	72½@73½	74@ 75	73@ 74
Caucho (Peruvian) ball.....	79½@80	86@ 87	88@ 89

AFRICAN.

AFRICAN.	CENTRALS.
Sierra Leone, 1st qual. 103½@104	Esmeralda, sausage. 88@ 89
Massai, red. 103½@104	Guayaquil, strip. 74@ 75
Benguella. 84½@ 85	Nicaragua, scrap. 84@ 85
Cameroon ball. 74 @ 75	Panama, slab. 65@ 66
Accra flake. 25 @ 26	Mexican, scrap. 86@ 87
Lopori ball, prime. 114 @ 115	Mexican, slab. 63@ 64
Lopori strip, prime. 98 @ 99	Mangabeira, sheet. 60@ 70
Madagascar, pinky. 95 @ 96	EAST INDIAN.
Ikelemba. 115 @ 116	Assam. 97@ 98
	Borneo. 45@ 49

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.	5\$400	Upriver, fine.	6\$500
Islands, coarse.	2\$900	Upriver, coarse.	4\$400

Exchange, 16½d.

Last Manáos advices:

Upriver, fine.	6\$400	Upriver, coarse.	3\$900
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Exchange, 16¼d.

In regard to the financial situation, Albert B. Beers (broker in India-rubber, No. 68 William street, New York), advises us:

During the first half of February money eased considerably, and there was a fairly good demand for paper both in town and out at 5 @ 6 per cent. but the latter part of the month the market has stiffened considerably, and the demand for paper has dropped to small proportions at 5½ @ 6 per cent.

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.				
	Fine and Medium.	Coarse.	Total. 1906.	Total. 1905.	Total. 1904.
Stocks, January 1.....	tons 117	5 = 122	69	56	
Arrivals, January.....	1151	653 = 1804	2073	1418	

Aggregating.....	1268	658 = 1926	2142	1474
Deliveries, January.....	1051	651 = 1702	1985	1410
Stocks, January 31.....	217	7 = 224	157	64

	PARÁ.			ENGLAND.		
	1906.	1905.	1904.	1906.	1905.	1904.
Stocks, January 1.....	tons 585	200	370	570	175	545
Arrivals, January.....	4720	3775	3760	565	905	1145
Aggregating.....	5305	3975	4130	1135	1080	1690
Deliveries, January.....	3845	2719	3565	675	725	1100
Stocks, January 31.....	1460	1256	565	460	355	590
World's visible supply, January 31.....	tons 4062	2972	3717			
Pará Receipts, July 1 to January 31.....	18,319	16,326	16,235			
Pará Receipts of Caucho, same dates.....	2065	1504	1519			
Afloat from Pará to United States, Jan. 31.	721	529	1418			
Afloat from Pará to Europe, January 31.....	1197	675	1020			

Ceylon (Plantation) Rubber Exports, 1905.

	DESTINATION.	
	Pounds.	Pounds.
Great Britain.....	124,738	Holland..... 125
Germany.....	19,887	Sweden..... 21
Belgium.....	10,386	
United States.....	10,054	Total, 1905..... 168,547
Australia.....	1,152	Total, 1904..... 77,212
France.....	2,184	Total, 1903..... 41,798

Bordeaux.

IMPORTATIONS OF CAOUTCHOUC.

	1904.	1905.
January.....	kilos 54,550	130,255
February.....	169,025	126,540
March.....	94,615	173,355
April.....	121,560	152,650
May.....	91,125	74,700
June.....	65,060	77,100
July.....	72,220	71,150
August.....	208,185	110,700
September.....	87,400	103,800
October.....	57,903	60,650
November.....	71,970	123,236
December.....		
Total.....	1,093,553	1,204,130

Antwerp.

The inscription sale on February 16 resulted in sales as follows:

	Offered.	Sold.
Congo sorts.....	kilos 194,152	191,017
Other sorts.....	72,704	57,555
Total.....	266,856	258,572

Prices were higher than the brokers' estimations, based upon results of the January inscription, by an average of 32 centimes per kilo, or about 3 per cent. Messrs. C. Schmid & Co. successeurs advise THE INDIA RUBBER WORLD that some of the more important lots sold were:

	Valuation.	Sold at.
10 tons Lopori II.....	francs 8 65	9.57½
19 " Maringa.....	5.80	6.27½ - 6.37½
15 " Aruwimi.....	11.75	12.07½
8 " Lac Leopold.....	12.70	12.90
10 " Congo M'Poko.....	12.25	12.72½ - 12.77½
27 " Kasai Loanda.....	11.30	11.47½
26 " Kasai Loanda Sankura.....	10.50	10.72½
7 " Lamami strips.....	12.25	12.25

Small lots of Straits Settlements plantation biscuits and crepe sold at 16.80 francs [= \$1.47].

RUBBER ARRIVALS AT ANTWERP.

JANUARY 22.—By the *Philippeville*, from the Congo:

Bunge & Co. (Société Général Africaine).....	78,000 Kilos
Do	35,000 "
Do (Chemins de fer Grand Lacs).....	9,000 "
Do (Cie. du Kasai).....	75,000 "
Société Coloniale Anversoise (Belge du Haut Congo).....	21,000 "
Do (Cie. de Lomami).....	5,000 "
Do (Süd Kamerun).....	2,500 "
Do	1,500 "
Comptoir Commercial Congolais.....	12,000 "
M. S. Cols. (Société Baniembe).....	1,500 "
Do (C. D'Heygere).....	500 "
Edmond Van Steensel (Cie. Bruxelloise Commerce du Haut Congo).....	3,000 "
G. & C. Kreglinger (Société "La Lobay").....	8,000 "
Comptoir des Produits Coloniaux (Ekela, Kadei Sangha).....	4,500 "
Do (Société N'Goko Sangha).....	1,500 "
Cie. Commerciale des Colonies (Cie. de l'N'Keme et l'N'Ken).....	3,000 "
Do (La Haut Sangha).....	10,500 "
Société Général de Commerce (Alimaïenne).....	4,500 "
Charles Dethier (Société La "M'Poko").....	6,500 "
Société Equatoriale Congolaise (Société l'Ikelemba).....	3,000 "

Total.....285,500 kilos

FEBRUARY 13.—By the *Leopoldville*, from the Congo:

Bunge & Co. ....(Société General Africaine).....	147,000 kilos
Do .....(Chemins de fer Grand Lacs).....	13,000 "
Do .....(Société A B I R).....	7,500 "
Do .....(Comité Special Katanga).....	13,000 "
Do .....(Sultanats du Haut Ubangi).....	24,000 "
Do .....(Société "La Kotto").....	8,000 "
Société Coloniale Anversoise.....(Süd Kamerun).....	5,500 "
Do .....(Belge du Haut Congo).....	4,000 "
Do .....(Cie. de Lomami).....	1,200 "
Do .....(Cie. du Kasai).....	8,000 "
Do .....(Cie. Française du Haut Congo).....	111,000 "
Do .....(Cie. Française du Haut Congo).....	1,300 "
Do .....(Cie. Française du Haut Congo).....	5,000 "
Comptoir Commercial Congolais.....	41,000 "
Charles Dethier (Belgika).....	1,000 "
M. S. Cols (Mr. D'Heygere).....	1,100 "
L. & W. Van de Velde.....	6,000 "

Total.....397,600 kilos

Liverpool.

EDMUND SCHLÜTER & Co. report [January 31]:

If prices appear unduly high in face of the large visible supply it must be taken into consideration that the latter is expected to show a considerable reduction during February-April. Our advices from Brazil for some time past have been that the ultimate result of the crop will not exceed its predecessor to a very large extent. We therefore continue to believe that it will be good policy to profit by any temporary reaction.

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for car-load lots in cents per pound—show a slight advance as compared with last month:

Old Rubber Boots and Shoes - Domestic.....	7½ @ 7¼
Do - Foreign.....	6¼ @ 6½
Pneumatic Bicycle Tires.....	6¼ @ 6½
Solid Rubber Wagon and Carriage Tires.....	8½ @ 8½
White Trimmed Rubber.....	10½ @ 11
Heavy Black Rubber.....	5¼ @ 6
Air Brake Hose.....	3¼ @ 3½
Fire and Large Hose.....	3 @ 3¼
Garden Hose.....	2½ @ 2½
Matting.....	1¼ @ 1½

A report reaches New York from Russia that the long discussed export duty on old rubber shoes is to become effective on March 1, but confirmation cannot be had among the best informed sources on this side of the Atlantic. The rate mentioned—£10 per ton—would figure out about 2½ cents per pound in American money.

WORLD'S VISIBLE SUPPLY OF PARA, JANUARY 31.

	1906.	1905.	1904.	1903.	1902.
Tons.....	5449	3677	4249	3008	5272
Prices, hard fine..	5/5	5/3	4/3¼	3/7	3/2½

LIVERPOOL STOCKS OF AFRICAN RUBBER, JANUARY 31.

	1906.	1905.	1904.	1903.	1902.
1906.....	301	432	500	500	500
1905.....	340	520	1899	393	393
1904.....	294	853	1898	381	381

MRSRS. JOSEPH FVNNY & Co., Harley buildings, Oldhall street India-rubber merchants and importers, have presented their friend, in the trade with a handsome "Diary for 1906" with useful statistics of rubber and "loss in washing" tables—pocket size and very convenient.

MR. GEORGE MACLEOD announces his withdrawal from the firm of Macleod & Co., rubber and general merchants, 57, Tower buildings, Liverpool, which firm will be continued under the same style by Messrs. William Chadwick and Herbert Evan Roberts, at the same address.

London.

EDWARD TILL & Co. report stocks [February 1]:

	1906.	1905.	1904.
Pará sorts.....	—	—	—
Borneo.....	65	14	25
Assam and Rangoon.....	10	1	4
Penang.....	311	99	—
Other sorts.....	194	200	211
Total.....	580	314	240
Pará sorts.....	465	359	590
Caucho.....	84	150	78
Other sorts.....	410	475	433
Total, United Kingdom.....	1539	1298	1341

PRICES PAID DURING JANUARY.

	1906.	1905.	1904.
Pará, fine, hard....	5/4¼ @ 5/4¼	5/0¾ @ 5/3½	3/11¼ @ 4/4
Do soft.....	5/2¼ @ 5/2¼	4/10¼ @ 5/1	3/10¼ @ 4/3¼
Negroheads, scrappy	3/11 @ 4/	3/9 @ 3/10¾	3/3 @ 3/4
Do Cameta	3/2½ @ 3/3	2/8¼ @ 3/	2/4¼ @ 2/8
Bolivian.....	5/4¼ @ 5/5	5/1 @ 5/3¼	4/ @ 4/4¼
Caucho, ball....	3/8 @ 3/9¼	3/3¼ @ 3/4½	3/2 @ 3/3
Do slab.....	3/1½ @ 3/2½	2/9 @ 2/11	2/8 @ 2/8¼
Do tails.....	No sales	3/	No sales

FEBRUARY 9.—Pará.—The market continues very firm and prices are again higher. Considerable sales of hard fine have been made at 5s. 5d., both for spot and delivery, and there are buyers of forward delivery at 5s. 5¼d., but no sellers. Considerable sales of soft fine have been made afloat at 5s. 3¼d., but there are now buyers at 5s. 3½d. for spot, and at 5s. 4d. for March-April delivery. Scrappy has been sold at 3s. 11½d. and Cametas at 3s. 3½d. per pound.

Bolivian.—Small sales of fine at 5s. 5d. but the principal importers are not sellers thereat. A good business has been done in Bolivian scrappy at 4s. and ball at 3s. 9d. per pound.

Peruvians.—Dearer, with sales of a small lot fine at 5s. 4¼d. @ 5s. 4¾d. and now landing and afloat at 5s. 4½d. per pound; ball at 3s. 8¼d. @ 3s. 8¾d. spot and near; scrappy at 3s. 9½d. @ 3s. 10½d.; slab at 3s. 1½d. @ 3s. 2d. per pound.

BUSINESS OPPORTUNITY.

WELL known Liverpool and reputable firm of India-rubber Merchants and Importers are open to buy on commission for good American and otherwise act as required, etc. Address LIVERPOOL, care of THE INDIA RUBBER WORLD. [813]

WANTED.

WANTED.—Several looms for weaving Cotton Jackets for Hose. Give full particulars and send sample of products to R. A., care of THE INDIA RUBBER WORLD. [926]

Mollendo.—None reported, value 5s. 3d. @ 5s. 3½d. per pound.
Plantation.—Firm at 6s. 2d. @ 6s. 2½d., Ceylon and Straits; medium sorts scarce and wanted.

The receipts of Pará and Peruvians for January were the largest on record, viz.: 5,710 tons against 4,590 last year, making the total receipts of this crop from July 1, 1905, to January 31, 1906, 20,400 tons against 17,900 tons July 1, 1904, to January 31, 1905, showing up to date an increase of 2,500 tons. The price to-day of fine Pará is 5s. 5d. against 5s. 2½d. last year and 4s. 4d. February 1, 1904. No auctions here this week.

LEWIS & PRAT.

More Rubber From Accra.

THE export of Accra rubber (from the Gold Coast Colony, West Africa), beginning in a very small way in 1880, increased rapidly until, in 1898, it reached nearly 6,000,000 pounds. It then declined rapidly, to about one-fourth of this amount. There has again been an increase, due, according to local officials, to new districts having been opened to trade, to replace the districts where the rubber had become exhausted. The official figures for 12 years follow:

YEAR.	Pounds.	YEAR.	Pounds.	YEAR.	Pounds.
1893.....	3,395,990	1897.....	4,957,016	1901.....	1,520,009
1894.....	3,027,527	1898.....	5,934,984	1902.....	1,599,974
1895.....	4,022,385	1899.....	5,572,554	1903.....	2,258,981
1896.....	3,735,439	1900.....	3,452,440	1904.....	4,013,837

Larger Exports From Bolivia.

A REPORT made by the Bolivian secretary of the treasury to the national congress gives the details of exports of rubber from that country for 1904, which are given below in comparison with the returns for three years preceding. The total of exports is less now than in some former years, but then the Bolivian returns embraced the Acre district, which now belongs to Brazil. Excluding the Acre, the output of Bolivian rubber was larger in 1904 than in any previous year, the increase being shared by all the customs districts, as shown below:

	1901.	1902.	1903.	1904.
[Shipped via Manáos]				
El Acre.....pounds	5,054,436	1,757,510	.....	.....
[Via Madeira river]				
Villa Bella.....	1,749,205	1,512,731	1,493,221	1,829,557
[Via Pacific ports]				
La Paz.....	627,783	631,288	535,623	848,767
Pelechuco.....	.....	.....	102,465	.....
Oruro.....	24,171	42,383	542,353	269,394
[Through Argentina]				
Puerto Suarez.....	167,543	238,577	229,796	493,381
Tarija.....	.....	4,096	2,816	15,382
Total.....	7,623,138	4,189,585	2,906,274	3,456,481
Excluding Acre.....	2,568,696	2,432,075	2,906,274	3,456,481

Para.

R. O. AHLERS & Co. report [January 22]:

Notwithstanding that the demand has been sufficient to absorb supplies, the late activity has become less spirited and business could only keep going by sellers modifying their pretensions. Prices had evidently reached so high a level that little was needed to cause some disturbance, and this was offered not only by weaker reports from the home markets, but also by the effect of liberal and increasing receipts. The decline, although only moderate, is more keenly felt by sellers in consequence of currency prices having also suffered from the advance of sterling exchange.

R. O. AHLERS & Co. report [February 1]:

In the attitude of the market, which for some time has been under the influence of dullness and depreciation, a notable change for the better has taken place in consequence of more reassuring advices from the consuming centers, and with the returning feeling of confidence business has at least for the present freed itself from the effects of depression in spite of the continuation of large receipts. Increasing demand has been followed by a firm and hardening tendency, producing a beneficial effect on prices, which is all the more appreciated by sellers as the currency is adversely affected by the advancing sterling exchange.

Rubber Receipts at Manaos.

DURING January and seven months of the crop season for three years [courtesy of Messrs. Scholz & Co.]:

FROM -	JANUARY.			JULY-JANUARY.		
	1906.	1905.	1904.	1906.	1905.	1904.
Rio Purus-Acre ... tons	1913	1767	1650	4746	3776	3851
Rio Madeira.....	159	194	247	1796	1880	1791
Rio Jurua.....	713	546	675	2219	1730	2110
Rio Javary-Iquitos...	319	239	344	2284	2055	1795
Rio Solimões.....	110	169	104	767	603	570
Rio Negro.....	117	164	113	285	339	267
Total.....	3340	3079	3133	12097	10383	10384
Caucho.....	1001	1092	712	2114	1742	1613
Total.....	4341	4171	3845	14211	12125	11997

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

February 5.—By the steamer *Boniface*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
General Rubber Co...	222,700	59,800	145,800	96,200	524,500
A. T. Morse & Co.....	122,900	26,200	132,500	99,900	381,500
Poel & Arnold.....	133,200	76,800	102,200	61,000	373,200
N. Y. Commercial Co.	216,600	45,600	74,900	27,500	364,600
Neale & Co.....	8,700	2,900	49,700	.....	61,300
Constantine P. Santos.	29,300	3,200	9,600	.....	42,100

JANUARY EXPORTS OF INDIA-RUBBER FROM PARA (KILOGRAMS).

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL.
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Schrader, Gruner & Co.....	81,300	34,909	97,132	410	213,751	325,138	45,304	70,922	77,138	518,502	732,253
Scholz Hartje & Co.....	34,837	8,468	99,870	10,285	153,460	71,837	11,056	12,551	66,681	162,125	315,585
A. H. Alden.....	84,371	16,206	74,595	12,043	187,215	59,883	9,680	19,163	450	89,176	276,391
J. A. Mendes & Co.....	129,855	25,142	107,708	1,229	263,934	.....	.....	.....	.....	.....	263,934
Neale & Staats.....	31,719	8,686	95,670	23	136,098	38,516	4,598	19,346	2,035	64,495	200,593
R. Suarez & Co.....	.....	.....	.....	.....	.....	93,036	.....	9,919	11,107	114,062	114,062
J. Marques & Co.....	21,962	3,225	23,193	364	48,744	30,211	3,355	15,113	.....	48,679	97,423
Pires, Teixeira & Co.....	16,688	.....	8,841	.....	25,529	26,609	.....	8,456	.....	35,065	60,594
Denis Cronan & Co.....	42,412	10,345	17,370	625	70,752	.....	.....	.....	.....	.....	70,752
Singlehurst Brocklehurst & Co.....	.....	.....	.....	.....	.....	35,970	1,061	4,149	.....	41,180	41,180
R. O. Ahlers & Co.....	4,223	1,567	1,965	.....	7,755	6,709	.....	814	692	8,215	15,970
B. A. Antunes & Co.....	.....	.....	.....	7,500	7,500	.....	.....	.....	.....	.....	7,500
Sundry small shippers.....	.....	.....	.....	.....	.....	19,010	3,520	3,395	925	26,850	26,850
Direct from Manáos.....	445,961	142,095	168,196	161,075	917,327	512,171	88,491	109,934	352,362	1,062,958	1,980,285
Direct from Iquitos.....	8,523	.....	6,408	28,246	43,177	140,053	10,112	92,881	264,429	507,475	550,658
Total.....	901,851	250,643	700,948	221,800	3,075,242	1,359,143	177,177	366,643	775,819	2,678,782	4,754,024

Hagemeyer & Brunn..	13,500	2,800	6,700	....=	23,000
G. Amsinck & Co.....	.....	.....	.....	15,000=	15,000

Total.....746,900 217,300 521,400 299,600=1,785,200

February 15.—By the steamer *Maranhense*, from Manáos and Para:

Poel & Arnold.....	215,400	60,800	69,200	133,900=	479,300
A. T. Morse & Co.....	153,500	35,500	146,600	52,300=	387,900
General Rubber Co....	225,600	65,100	59,200	14,400=	364,300
N. Y. Commercial Co..	54,800	9,700	95,200	300=	160,000
Neale & Co.....	21,500	1,000	57,900	.....=	80,400
Hagemeyer & Brunn..	41,500	1,400	21,800	.....=	64,700
Edmund Reeks & Co..	18,800	2,300	11,100	.....=	32,200
Constantine P. Santos.	7,200	300	4,900	.....=	12,400

Total.....738,300 176,100 465,900 200,900=1,581,200

February 26.—By the steamer *Camelense*, from Manáos and Pará:

N. Y. Commercial Co..	159,500	40,600	72,600	64,500=	337,200
A. T. Morse & Co.....	91,600	24,500	92,700	13,600=	222,400
Poel & Arnold.....	26,900	15,500	13,200	101,400=	157,000
Neale & Co.....	34,600	8,700	45,300	.....=	88,600
General Rubber Co....	33,100	23,000	15,800	800=	72,700
Constantine P. Santos..	26,300	7,400	15,300	600=	49,600
Edmund Reeks & Co...	4,200	600	20,000	.....=	24,800
Hagemeyer & Brunn...	6,700	1,700	2,700	.....=	11,100

Total.....382,900 122,000 277,600 180,900= 963,400

[Note.—The steamer *Polycarp* from Para, is due at New York, March 6, with 755 tons Rubber and 65 tons Caucho.]

PARA RUBBER VIA EUROPE.

JAN. 24.—By the <i>Moltke</i> =Hamburg:	
Poel & Arnold (Fine).....	34,000
FEB. 1.—By the <i>Canada</i> =Liverpool:	
Poel & Arnold (Coarse).....	8,000
FEB. 6.—By the <i>Blucher</i> =Hamburg:	
Poel & Arnold (Fine).....	6,500
FEB. 10.—By the <i>Lucania</i> =Liverpool:	
New York Commercial Co. (Fine).....	16,000
FEB. 8.—By the <i>Baltic</i> =Liverpool:	
A. T. Morse & Co. (Coarse).....	11,000
FEB. 20.—By the <i>Amerika</i> =Hamburg:	
Poel & Arnold (Fine).....	10,000

OTHER ARRIVALS AT NEW YORK

CENTRALS.

JAN. 29.—By the <i>Yucatan</i> =Mexico:	
H. Marquardt & Co.....	8,000
Harburger & Stack.....	5,500
E. Steiger & Co.....	2,500
Joseph Ware.....	1,100
Fred Probst & Co.....	1,000
Thebaud Brothers.....	700
JAN. 29.—By the <i>Financia</i> =Colon:	
Hirzel, Feltman & Co.....	35,000
Mann & Emdon.....	6,000
Barclay & Co.....	2,000
JAN. 29.—By the <i>Niagara</i> =Tampico:	
New York Commercial Co.....	20,000
Continental Mexico Co.....	6,000
JAN. 30.—By the <i>El Monte</i> =New Orleans:	
A. T. Morse & Co.....	4,000
A. N. Rotholz & Co.....	2,500
JAN. 30.—By the <i>Venetia</i> =Greytown:	
Hirzel, Feltman & Co.....	3,500
E. B. Strout.....	3,000
Laurence Johnson & Co.....	2,500
G. Amsinck & Co.....	1,000
JAN. 31.—By the <i>Siberia</i> =Colombia:	
American Trading Co.....	3,000
A. Heid.....	1,500
Roldan & Van Sickle.....	700
Isaac Brandon & Bros.....	500
FEB. 2.—By the <i>La Plata</i> =Greytown:	
E. B. Strout.....	8,000
G. Amsinck & Co.....	7,500
George A. Alden & Co.....	4,000
A. M. Capen Sons.....	2,500
Meyer Hecht.....	2,000
Eggers & Heinlein.....	1,500
A. Heid.....	1,000
A. Santos & Co.....	500
FEB. 5.—By the <i>Minneapolis</i> =London:	
General Rubber Co.....	4,500
FEB. 5.—By the <i>Esperanza</i> =Mexico:	
Harburger & Stack.....	2,000
L. N. Chemedin & Co.....	2,000
American Trading Co.....	500
FEB. 6.—By the <i>Ahai</i> =Colombia:	
Kunhardt & Co.....	1,000
Roldan & Van Sickle.....	1,000
Isaac Brandon & Bros.....	700
FEB. 5.—By the <i>Colon</i> =Colon:	
Mann & Emdon.....	8,000
American Trading Co.....	1,500

CENTRALS—Continued.

G. Amsinck & Co.....	1,500
Eggers & Heinlein.....	1,000
George A. Alden & Co.....	1,000
R. G. Barthold.....	500
A. M. Capen Sons.....	500
FEB. 5.—By the <i>Tintorello</i> =Bahia:	
Hagemeyer & Brunn.....	22,500
Hirsch & Kaiser.....	15,000
J. H. Rossbach & Bros.....	6,500
American Commercial Co.....	4,500
Poel & Arnold.....	3,500
FEB. 7.—By the <i>Prins Wilhelm</i> =Hamburg:	
Rubber Trading Co.....	7,000
FEB. 9.—By the <i>Excelsior</i> =New Orleans:	
Manhattan Rubber Mfg. Co.....	11,500
FEB. 10.—By the <i>Vigilancia</i> =Mexico:	
Harburger & Stack.....	3,500
Graham, Hinkley & Co.....	1,500
E. Steiger & Co.....	1,500
Strube & Ulitz.....	2,000
H. Marquardt & Co.....	1,000
FEB. 10.—By the <i>Advance</i> =Colon:	
Hirzel, Feltman & Co.....	17,500
G. Amsinck & Co.....	10,000
A. Santos & Co.....	7,000
Dumarest Bros. & Co.....	4,500
Piza, Nephews & Co.....	6,500
Flint & Co.....	4,500
Roldan & Van Sickle.....	3,500
Mann & Emdon.....	1,500
Isaac Brandon & Bros.....	1,500
W. R. Grace & Co.....	1,000
American Trading Co.....	1,000
Mecke & Co.....	500
Isaac Kubie & Co.....	500
A. M. Capen Sons.....	500
Laurence Johnson & Co.....	3,000
FEB. 13.—By the <i>City Washington</i> =Tampico:	
Edward Maurer.....	22,500
New York Commercial Co.....	1,000
FEB. 14.—By the <i>Sarnia</i> =Colombia:	
D. A. De Lima & Co.....	4,500
Isaac Brandon & Bros.....	3,000
Isaac Kubie & Co.....	2,000
Wahderlig & Focke.....	1,500
Andreas & Co.....	2,000
A. A. Lindo & Co.....	1,000
FEB. 15.—By the <i>Panama</i> =Colon:	
Mann & Emdon.....	2,000
Laurence Johnson & Co.....	2,000
Dumarest Bros. & Co.....	500
J. A. Medina & Co.....	500
FEB. 17.—By the <i>Cameous</i> =Bahia:	
Hirsch & Kaiser.....	26,000
J. H. Rossbach & Bros.....	11,500
Poel & Arnold.....	9,000
Hagemeyer & Brunn.....	9,000
American Commercial Co.....	5,500
FEB. 19.—By the <i>Virginia</i> =Greytown:	
G. Amsinck & Co.....	6,000
Laurence Johnson & Co.....	2,000
J. A. Medina & Co.....	1,500
Eggers & Heinlein.....	1,500
American Trading Co.....	1,500
Hirzel, Feltman & Co.....	500
H. Marquardt & Co.....	500
European Account.....	3,000
FEB. 19.—By the <i>Santiago</i> =Mexico:	
New York Commercial Co.....	4,000
Fred Probst & Co.....	1,000
H. Marquardt & Co.....	1,000
American Trading Co.....	500

CENTRALS—Continued

FEB. 19.—By the <i>Allianca</i> =Colon:	
Hirzel, Feltman & Co.....	17,000
Dumarest Bros. & Co.....	5,000
F. Rosenstein & Co.....	4,000
G. Amsinck & Co.....	2,000
George A. Alden & Co.....	2,000
A. Santos & Co.....	1,500
Roldan & Van Sickle.....	1,500
L. N. Chemedin & Co.....	1,500
Isaac Brandon & Bros.....	1,000
FEB. 20.—By the <i>El Monte</i> =New Orleans:	
A. T. Morse & Co.....	4,000
A. N. Rotholz.....	2,000
G. Amsinck & Co.....	1,500
Eggers & Heinlein.....	1,000
FEB. 20.—By the <i>Amerika</i> =Hamburg:	
General Rubber Co.....	18,000
FEB. 20.—By the <i>Magdalena</i> =Greytown:	
G. Amsinck & Co.....	11,000
E. B. Strout.....	4,000
Laurence Johnson & Co.....	3,000
Roldan & Van Sickle.....	2,500
America Trading Co.....	2,000
A. D. Straus & Co.....	1,000
A. Heid.....	1,000
Meyer Hecht.....	500
FEB. 21.—By the <i>Carb I</i> =Truxillo:	
Eggers & Heinlein.....	3,500
H. W. Peabody & Co.....	1,000

AFRICANS.

JAN. 26.—By the <i>Arabic</i> =Liverpool:	
General Rubber Co.....	10,000
Earle Brothers.....	6,500
JAN. 27.—By the <i>Campania</i> =Liverpool:	
F. R. Muller Co.....	45,000
George A. Alden & Co.....	6,000
JAN. 29.—By the <i>Finland</i> =Antwerp:	
Poel & Arnold.....	62,000
JAN. 29.—By the <i>Patricia</i> =Hamburg:	
Poel & Arnold.....	67,000
A. T. Morse & Co.....	40,000
George A. Alden & Co.....	6,000
FEB. 1.—By the <i>Canada</i> =Liverpool:	
Poel & Arnold.....	60,000
A. T. Morse & Co.....	8,000
FEB. 1.—By the <i>Teutonic</i> =Liverpool:	
George A. Alden & Co.....	20,000
FEB. 2.—By the <i>Pretoria</i> =Hamburg:	
A. T. Morse & Co.....	20,000
FEB. 3.—By the <i>Bordeaux</i> =Havre:	
Poel & Arnold.....	13,500
A. T. Morse & Co.....	5,000
FEB. 5.—By the <i>Carmania</i> =Liverpool:	
George A. Alden & Co.....	30,000
A. T. Morse & Co.....	6,000
Earle Brothers.....	5,000
A. W. Bunn.....	5,000
FEB. 5.—By the <i>Fricka</i> =Bordeaux:	
George A. Alden & Co.....	28,000
Henry A. Gould Co.....	5,000
FEB. 6.—By the <i>Vaderland</i> =Antwerp:	
Poel & Arnold.....	50,000
Western Electric Co.....	22,500
Robinson & Tallman.....	9,000
Rubber Trading Co.....	4,500
FEB. 6.—By the <i>Blucher</i> =Hamburg:	
Poel & Arnold.....	11,000
Rubber Trading Co.....	11,000
A. T. Morse & Co.....	5,000

AFRICANS—Continued.

FEB. 8.—By the <i>Baltica</i> =Liverpool:	
General Rubber Co.	85,000
George A. Alden & Co.	95,000
A. T. Morse & Co.	22,500
Poel & Arnold.	35,000
F. R. Muller Co.	22,500 260,000
FEB. 10.—By the <i>Lucania</i> =Liverpool:	
George A. Alden & Co.	15,000
FEB. 13.—By the <i>Kronland</i> =Antwerp:	
George A. Alden & Co.	56,000
Poel & Arnold.	90,000
Joseph Cantor.	50,000 196,000
FEB. 15.—By the <i>Bovic</i> =Liverpool:	
George A. Alden & Co.	45,000
Poel & Arnold.	35,000
F. R. Muller Co.	11,000 91,000
FEB. 15.—By the <i>Waldersee</i> =Hamburg:	
A. T. Morse & Co.	35,000
George A. Alden & Co.	11,500
Poel & Arnold.	11,500 58,000
FEB. 15.—By the <i>Majestic</i> =Liverpool:	
Poel & Arnold.	20,000
George A. Alden & Co.	20,000
General Rubber Co.	20,000
Hagemeyer & Brunn.	15,000 75,000
FEB. 19.—By the <i>Ville de Rouen</i> =Havre:	
George A. Alden & Co.	5,000
Henry A. Gould Co.	3,500 8,500
FEB. 20.—By the <i>Amerika</i> =Hamburg:	
A. T. Morse & Co.	60,000
Poel & Arnold.	25,000
George A. Alden & Co.	20,000 105,000
FEB. 21.—By the <i>Ryndam</i> =Rotterdam:	
Poel & Arnold.	50,000
A. T. Morse & Co.	6,000 26,000

EAST INDIAN.

JAN. 29.—By the <i>Indrasamha</i> =Singapore:	
Poel & Arnold.	65,000
Winter & Smillie.	15,000
Pierre T. Betts.	10,000 90,000

JAN. 31.—By the *Europe*=London:

George A. Alden & Co.	43,000
F. R. Muller Co.	10,000
A. T. Morse & Co.	10,000 63,000

FEB. 5.—By the *Minneapolis*=London:

Poel & Arnold.	7,000
H. W. Peabody Co.	3,000
George A. Alden & Co.	2,000 12,000

FEB. 10.—By the *Philadelphia*=London:

Robinson & Tallman.	22,500
A. T. Morse & Co.	11,500 34,000

FEB. 13.—By the *Schuytill*=Singapore:

George A. Alden & Co.	67,000
Heabler & Co.	34,000
Pierre T. Betts.	20,000
Poel & Arnold.	20,000
G. Amsinck & Co.	7,000 148,000

FEB. 15.—By the *America*=London:

George A. Alden & Co.	7,000
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GUTTA-JELUTONG.

FEB. 13.—By the *Schuytill*=Singapore:

George A. Alden & Co.	200,000
Windmuller & Roelker.	225,000
Heabler & Co.	110,000
F. R. Muller & Co.	55,000 590,000

GUTTA-PERCHA AND BALATA.

POUNDS.

JAN. 29.—By the *Indrasamha*=Singapore:

George A. Alden & Co.	20,000
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FEB. 2.—By the *Preterian*=Hamburg:

H. Rost & Co.	18,000
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FEB. 20.—By the *Amerika*=Hamburg:

To Order.	23,000
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BALATA.

JAN. 27.—By the *New York*=London:

Earle Brothers.	6,000
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FEB. 13.—By the *Statendam*=Rotterdam:

Earle Brothers.	17,000
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CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY.

Imports:	Pounds.	Value.
India-rubber.	6,162,187	\$5,236,550
Gutta-percha.	22,311	12,186
Gutta-jelutong (Pontianak).	192,830	8,241
Total.	6,377,328	\$5,256,977

Exports:	Pounds.	Value.
India-rubber.	139,650	\$9,430
Reclaimed rubber.	94,522	12,688
Rubber scrap imported.	1,346,850	\$2,942

BOSTON ARRIVALS.

Dec. 2.—By the <i>Saxonia</i> =Liverpool:	POUNDS.
George A. Alden & Co.—African.	14,905
Dec. 12.—By the <i>Bosnia</i> =Hamburg:	
Poel & Arnold—African.	3,947
George A. Alden & Co.—African.	27,089 31,036
Dec. 13.—By the <i>Michigan</i> =Liverpool:	
George A. Alden & Co.—African.	8,935
Dec. 15.—By the <i>Ivernia</i> =Liverpool:	
George A. Alden & Co.—African.	6,203
Dec. 15.—By the <i>Canadian</i> =Liverpool:	
George A. Alden & Co.—African.	3,378
F. R. Muller Co.—African.	6,902 10,280
Dec. 26.—By the <i>Bohemian</i> =Liverpool:	
F. R. Muller Co.—African.	5,349
Poel & Arnold—Caucho.	22,675 28,024
Dec. 26.—By the <i>Sachem</i> =Liverpool:	
F. R. Muller & Co.—African.	5,361
George A. Alden & Co.—African.	3,900 9,261
Total.	108,645
[Value, \$71,895]	

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	5,966,501	492,236	5,474,265
January-November.	58,181,200	3,128,286	55,052,914
Twelve months, 1905.	64,147,701	3,620,522	60,527,179
Twelve months, 1904.	61,889,758	3,449,433	58,440,325
Twelve months, 1903.	55,744,120	3,691,397	52,052,723

GERMANY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	4,841,980	1,584,220	3,257,760
January-November.	42,222,620	15,687,100	26,535,520
Twelve months, 1905.	47,064,600	17,271,320	29,793,280
Twelve months, 1904.	38,295,400	10,052,020	28,243,380
Twelve months, 1903.	34,290,740	11,214,280	23,076,460

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	2,792,020	1,567,580	924,440
January-November.	23,991,440	14,783,780	9,207,660
Twelve months, 1905.	26,783,460	16,651,360	10,132,100
Twelve months, 1904.	20,651,620	11,526,900	9,124,720
Twelve months, 1903.	16,918,220	9,631,160	7,287,060

BELGIUM †

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	1,899,286	2,154,392	[‡ 255,106]
January-November.	16,779,796	12,805,227	3,974,569
Twelve months, 1905.	18,679,082	14,959,619	3,719,463
Twelve months, 1904.	17,955,293	16,301,295	1,653,998
Twelve months, 1903.	16,941,753	14,052,030	2,889,723

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	5,351,808	3,111,472	2,240,336
January-November.	57,753,136	30,993,536	26,759,600
Twelve months, 1905.	63,104,944	34,105,008	28,999,936
Twelve months, 1904.	55,557,152	33,415,542	22,141,610
Twelve months, 1903.	54,433,680	37,658,768	16,774,912

ITALY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.			
January-November.	1,531,420	749,480	1,281,940
Twelve months, 1905.			
Twelve months, 1904.			
Twelve months, 1903.	1,466,690	148,720	1,318,240

AUSTRIA-HUNGARY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1905.	296,120	440	295,680
January-November.	2,719,420	44,880	2,674,540
Twelve months, 1905.	3,015,540	45,320	2,970,220
Twelve months, 1904.	2,920,520	15,620	2,904,900
Twelve months, 1903.	2,783,660	32,120	2,751,540

NOTE.—German statistics include Gutta-percha, Balata, old (waste) rubber, and substitutes. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

* General Commerce. † Special Commerce. ‡ Net Exports.

BUYERS' DIRECTORY OF THE RUBBER TRADE.

CLASSIFIED LIST OF MANUFACTURERS AND DEALERS IN INDIA-RUBBER GOODS AND RUBBER MANUFACTURERS' SUPPLIES.

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MECHANICAL RUBBER GOODS

Belting.
Diaphragms.
Gaskets.
Hose (Fire, Garden, Steam).
Mats and Matting.
Mould Work.
Packing.
Valves.
Washers.

Mechanical Rubber Goods—General.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Bowers Rubber Co., San Francisco, Cal.
Alfred Calmon, Ltd., Hamburg, Germany.
Canadian Rubber Co. of Montreal.
Chicago Rubber Wks., Chicago.
Cincinnati Rubber Mfg. Co., Cincinnati.
Cleveland Rubber Co., Cleveland, O.
Combination Rubber Mfg. Co., Bloomfield, N. J.
Continental Caoutchouc & Gutta Percha Co., Hanover, Germany.
The Dermatine Co., London.
Dunlop Tire & Rubber Goods Co., Toronto.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha & Rubber Mfg. Co., Toronto.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
Liverpool Rubber Co., Liverpool, Eng.
Chas. Macintosh & Co., Ltd., Manchester, England.

Mechanical Goods—General—Continued.

Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., New York.
National India-Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
North British Rubber Co., Ltd., Edinburgh.
Peerless Rubber Mfg. Co., New York.
Pirelli & Co., Milan, Italy.
Revere Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston.
Standard Rubber Co., Trenton, N. J.
Jes. Stokes Rubber Co., Trenton, N. J.
Trenton Rubber Mfg. Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.
Whitehead Bros. Rubber Co., Trenton, N. J.

Air Brake Hose.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Combination Rubber Mfg. Co., Bloomfield, N. J.
Electric Hose & Rubber Co., Wilmington, Del.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Asbestos.

Alfred Calmon, Ltd., Hamburg, Germany.

Belting (Canvas).

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Eureka Fire Hose Co., New York.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

Billiard Cushions.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Combination Rubber Mfg. Co., Bloomfield, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., Ltd.
New York Rubber Co., New York.
Revere Rubber Co., Boston-New York.

Blankets—Printers'.

Peerless Rubber Mfg. Co., New York.
Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Hodgman Rubber Co., New York.
Gustave Kush, New York.
Liverpool Rubber Co., Liverpool, Eng.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Brushes.

Boston Woven Hose & Rubber Co.
C. J. Bailey & Co., Boston.

Buffers.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Liverpool Rubber Co., Ltd., Liverpool.

Card Cloths.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.

Carriage Mats.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.

Carriage Mats—Continued.

N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Voorhees Rubber Mfg. Co., Jersey City.

Cord (Pure Rubber).

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Electric Hose & Rubber Co., Wilmington, Del.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Revere Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Deckle Straps.

Boston Belting Co., Boston.
B. F. Goodrich Co., Akron, O.
Liverpool Rubber Co., Liverpool, Eng.
Mechanical Rubber Co., Chicago.
New York Belting & Packing Co., N. Y.
Revere Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Door Springs.

Hodgman Rubber Co., New York.

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Boston Woven Hose & Rubber Co.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.
N. J. Car Spring & Rubber Co., Jersey City.
Revere Rubber Co., Youngstown, O.

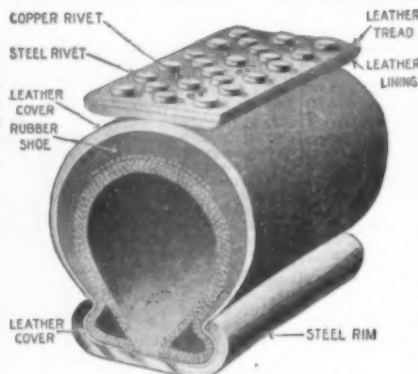
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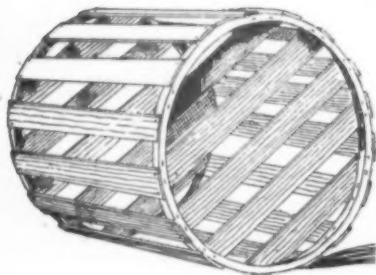
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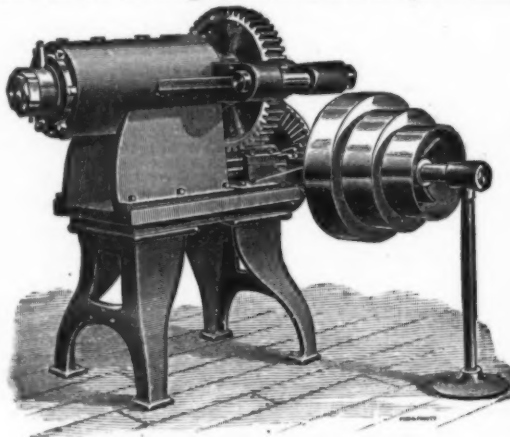
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 Home Rubber Co., Trenton, N. J.
 Liverpool Rubber Co., Liverpool, Eng.
 Manhattan Rubber Mfg. Co., New York.
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 New York Belting & Packing Co., N. Y.
 New York Rubber Co., New York.
 Revere Rubber Co., Boston, Mass.
 Jos. Stokes Rubber Co., Trenton, N. J.
 Voorhees Rubber Mfg. Co., Jersey City, N. J.

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 B. F. Goodrich Co., Akron, O.
 Liverpool Rubber Co., Liverpool, Eng.
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 Tyer Rubber Co., Andover, Mass.
 Voorhees Rubber Mfg. Co., Jersey City.

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 Revere Rubber Co., Boston.

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Cincinnati Rubber Mfg. Co., Cincinnati, O.

Hat Bags.

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 Mattson Rubber Co.
 Mechanical Rubber Co., Chicago.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 New York Rubber Co., New York.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston.

Horse Shoe Pads.

Canadian Rubber Co. of Montreal.
 Home Rubber Co., Trenton, N. J.
 Peerless Rubber Mfg. Co., New York.
 Plymouth Rubber Co., Stoughton, Mass.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Hose—Armored.

Hose—Wire Wound.

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 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 Electric Hose & Rubber Co., Wilmington, Del.

B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Chas. Macintosh & Co., Ltd., Manchester, England.
 N. J. Car Spring & Rubber Co., Jersey City.

Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Hose Couplings and Fittings.

Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.

Hose Linings.

Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.

Hose Linings.—Continued.

Empire Rubber Mfg. Co., Trenton, N. J.
 Eureka Rubber Mfg. Co., Trenton, N. J.
 B. F. Goodrich Co., Akron, O.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 Peerless Rubber Mfg. Co., New York.
 Revere Rubber Co., Boston.

Hose—Protected.

Boston Belting Co., Boston-New York.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Electric Hose & Rubber Co., Wilmington, Del.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Hose Core.

Alderfer Crute Co., Sharon Centre, Ohio.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
 Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

COTTON AND LINEN.

Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 COTTON AND LINEN.

Canadian Rubber Co. of Montreal.
 Cleveland Rubber Co., Cleveland, O.
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 Eureka Rubber Mfg. Co., Trenton.
 Fabric Fire Hose Co., New York.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Gutta Percha and Rubber Mfg. Co. of Toronto.

Home Rubber Co., Trenton, N. J.
 Manhattan Rubber Mfg. Co., New York.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston.
 Jos. Stokes Rubber Co., Trenton, N. J.
 Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Boston Belting Co., Boston-New York.
 Electric Hose & Rubber Co., Wilmington, Del.

B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston.

"Jenkins '96" Packing.

Jenkins Bros., New York.

Lawn Sprinklers.

Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
 B. F. Goodrich Co., Akron, O.
 Peerless Rubber Mfg. Co., New York.
 Revere Rubber Co., Boston-New York.

Mould Work.

[See Mechanical Rubber Goods.]

Boston Woven Hose & Rubber Co.
 Davidson Rubber Co., Boston.
 Davol Rubber Co., Providence, R. I.
 Faultless Rubber Co., Akron, O.
 Hardman Rubber Co., Belleville, N. J.
 Hodgman Rubber Co., New York.
 La Crosse (Wis.) Rubber Mills Co.
 Mattson Rubber Co., New York.
 Mitzel Rubber Co., Akron, O.
 National India Rubber Co., Bristol, R. I.
 Plymouth Rubber Co., Stoughton, Mass.
 Tyer Rubber Co., Andover, Mass.

"Nubian" Packing.

Voorhees Rubber Mfg. Co., Jersey City.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 Lake Shore Rubber Co., Erie, Pa.
 N. J. Car Spring & Rubber Co., Jersey City.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-Pittsburgh.
 Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.
 Peerless Rubber Mfg. Co., New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
 B. F. Goodrich Co., Akron, O.
 Republic Rubber Co., Youngstown, O.

Pump Valves.

[See Mechanical Rubber Goods.]
 Jenkins Bros., New York.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
 Canadian Rubber Co. of Montreal.
 Cleveland Rubber Co., Cleveland, O.
 Empire Rubber Mfg. Co., Trenton, N. J.
 Eureka Rubber Mfg. Co. of Trenton.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 Manhattan Rubber Mfg. Co., New York.
 Mechanical Rubber Co., Chicago.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 Peerless Rubber Mfg. Co., New York.
 Plymouth Rubber Co., Stoughton, Mass.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.

Sewing Machine Rubbers.

B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston-New York.
 Canadian Rubber Co. of Montreal.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Hardman Rubber Co., Belleville, N. J.
 Liverpool Rubber Co., Liverpool, Eng.
 N. J. Car Spring & Rubber Co., Jersey City.
 Peerless Rubber Mfg. Co., New York.
 Plymouth Rubber Co., Stoughton, Mass.
 Republic Rubber Co., Youngstown, Ohio.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 Cleveland Rubber Co., Cleveland, O.
 Empire Rubber Mfg. Co., Trenton, N. J.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 Liverpool Rubber Co., Liverpool, Eng.
 Manhattan Rubber Mfg. Co., New York.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 New York Rubber Co., New York.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
 Mechanical Fabric Co., Providence, R. I.
 Revere Rubber Co., Boston.

Tiling.

Canadian Rubber Co. of Montreal, Ltd.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 N. J. Car Spring & Rubber Co., Jersey City.
 New York Belting & Packing Co., N. Y.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, Ohio.
 Voorhees Rubber Mfg. Co., Jersey City.

Tires.

AUTOMOBILE, BICYCLE, AND CARRIAGE.
 Canadian Rubber Co. of Montreal, Ltd.
 Continental Caoutchouc & Guttapercha Co., Hanover.
 Dunlop Tire & Rubber Goods Co., Toronto.
 Empire Rubber Mfg. Co., Trenton, N. J.
 Fisk Rubber Co., Chicopee Falls, Mass.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., Toronto.

Tires.—Continued.

Healy Leather Tire Co., New York.
 Kokomo Rubber Co., Kokomo, Ind.
 Lake Shore Rubber Co., Erie, Pa.
 Liverpool Rubber Co., Liverpool, Eng.
 Chas. Macintosh & Co., Ltd., Manchester, Eng.
 North British Rubber Co., Ltd., Edinburgh.
 Plymouth Rubber Co., Stoughton, Mass.
 Republic Rubber Co., Youngstown, O.
 AUTOMOBILE AND CARRIAGE.
 Boston Belting Co., Boston-New York.
 Eureka Rubber Mfg. Co., Trenton, N. J.
 Revere Rubber Co., Boston-New York.

Tubing.

[See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
 Boston Woven Hose & Rubber Co.
 Davidson Rubber Co., Boston.
 Davol Rubber Co., Providence, R. I.
 B. F. Goodrich Co., Akron, O.
 Hardman Rubber Co., Belleville, N. J.
 Plymouth Rubber Co., Stoughton, Mass.
 Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
 Cleveland Rubber Co., Cleveland, O.
 B. F. Goodrich Co., Akron, O.
 Manhattan Rubber Mfg. Co., New York.
 Mechanical Rubber Co., Chicago.
 New York Belting & Packing Co., N. Y.
 New York Rubber Co., New York.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York.
 Boston Belting Co., Boston-New York.
 B. F. Goodrich Co., Akron, O.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

Jenkins Bros., New York-Chicago.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
 Cleveland Rubber Co., Cleveland, O.
 B. F. Goodrich Co., Akron, O.
 Home Rubber Co., Trenton, N. J.
 Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
 C. J. Bailey & Co., Boston.
 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 Cleveland Rubber Co., Cleveland, O.
 Davidson Rubber Co., Boston.
 Davol Rubber Co., Providence, R. I.
 Est. of Jos. Bachrach, Brooklyn, N. Y.
 Faultless Rubber Co., Akron, O.
 B. F. Goodrich Co., Akron, O.
 Hardman Rubber Co., Belleville, N. J.
 Hodgman Rubber Co., New York.
 Chas. Macintosh & Co., Ltd., Manchester, Eng.
 Mitzel Rubber Co., Akron, O.
 North British Rubber Co., Ltd., Edinburgh.
 Pirelli & Co., Milan, Italy.
 Seamless Rubber Co., New Haven, Ct.
 Tyer Rubber Co., Andover, Mass.

Balloons.

King & Leatherow, Newark, N. J.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Balls, Dolls and Toys.

Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapereha Co.
B. F. Goodrich Co., Akron, O.
New York Rubber Co., New York

Combs.

American Hard Rubber Co., New York.

Elastic Bands.

Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston
Tyer Rubber Co., Andover, Mass.

Erasable Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Mattson Rubber Co., New York.

Finger Cots.

Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Daval Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
King & Leatherow, Newark, N. J.
Pure Gum Specialty Co., Barborton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Daval Rubber Co., Providence, R. I.
Hardman Rubber Co., Belleville, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Chas. Macintosh & Co., Ltd., Manchester, Eng.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

**MACKINTOSHED
AND SURFACE
GOODS****Air Goals (Rubber).**

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.

Barbers' Bibs.

Daval Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., Toronto.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
Chas. Macintosh & Co., Ltd., Manchester, Eng.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

**RUBBER
FOOTWEAR****Boots and Shoes.**

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Alfred Calmon, Ltd., Hamburg, Germany.
Canadian Rubber Co. of Montreal.
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Liverpool Rubber Co., Liverpool, Eng.
Lycorning Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapereha Co., Hanover.
Grieb Rubber Co., Trenton, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Springfield Elastic Tread Co., Springfield, Ohio.

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Granby Rubber Co., Granby, Quebec.
La Crosse Rubber Mills Co., La Crosse, Wis.
Liverpool Rubber Co., Liverpool, Eng.
National India Rubber Co., Providence.
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

**SPORTING
GOODS****Foot Balls.**

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.

Submarine Outfits.

Hodgman Rubber Co., New York.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.

**DENTAL AND
STAMP RUBBER****Dental Gum.**

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL**Electrical Supplies.**

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Chas. Macintosh & Co., Ltd., Manchester, Eng.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
Home Rubber Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J.

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

MISCELLANEOUS**Architect and Engineer.**

Herbert S. Kimball, Boston.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical Analyses.

Durand Woodman, Ph. D., New York.
H. L. Terry, Manchester, England.

Chemists.

Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph. D., New York.

Engraver.

P. C. Smith, Boston, Mass.

Laboratory—Tests, Analyses.

G. E. Heyl-Dia, New York.

Rubber Journals.

Gummi-Zeitung, Dresden, Germany.

Rubber Tree Seeds.

J. P. William & Bros., Heneraigala, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER
MACHINERY

Acid Tanks.

Birmingham Iron Foundry, Derby, Ct.
Band Cutting Machine.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Belt Folding Machines.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Slitters.

Cloth Dryers.

Gearing.

Shafting.

Wrapping Machines.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Stretchers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Hoggsan & Pettis Mfg. Co., New Haven.

Boilers.

William R. Thropp, Trenton, N. J.

Braidors.

New England Butt Co., Providence, R. I.

Buckles.

The Weld Mfg. Co., Boston.

Cabling Machinery.

Alton Machine Co., New York.

Calenders.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Castings.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Chucks (Lathes).

Hoggsan & Pettis Mfg. Co., New Haven.

Churns.

American Tool & Machine Co., Boston.

Clutches.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Crackers.

Alton Machine Co., New York.

Devulcanizers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Edred W. Clark, Hartford, Ct.
William R. Thropp, Trenton, N. J.

Dies.

John J. Adams, Worcester, Mass.
Barbour Bros., Trenton, N. J.
J. W. Dewees, Philadelphia, Pa.
Hoggsan & Pettis Mfg. Co., New Haven.

Doubling Machines.

American Tool & Machine Co., Boston.

Drying Apparatus.

American Process Co., New York.

Drying Machines.

Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.

Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.

Alton Machine Co., New York.

William R. Thropp, Trenton, N. J.

Engraving Roll.

Hoggsan & Pettis Mfg. Co., New Haven.

Factory Construction.

Herbert S. Kimball, Boston.

Grinders and Mixers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.

Hangers.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Hose Machines.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.

Birmingham Iron Foundry, Derby, Ct.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Hydraulic Machinery.

Alton Machine Co., New York.

Iron Castings.

Alton Machine Co., New York.

Lasts (Rubber Shoe).

Middlesex Last Co., Boston.

Lathes—Hard Rubber.

A. Adamson, Akron, Ohio.

Lathes—Jar Ring.

A. Adamson, Akron, Ohio.

Alton Machine Co., New York.

Birmingham Iron Foundry, Derby, Ct.

William R. Thropp, Trenton, N. J.

Machinists' Tools.

Hoggsan & Pettis Mfg. Co., New Haven.

Moulds.

A. Adamson, Akron, Ohio.

Alton Machine Co., New York.

W. E. Arnold, Malden, Mass.

Barbour Bros., Trenton, N. J.

Birmingham Iron Foundry, Derby, Ct.

J. W. Dewees, Philadelphia, Pa.

Hoggsan & Pettis Mfg. Co., New Haven.

Pillow Blocks.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Presses (for Rubber Work.)

A. Adamson, Akron, O.

Alton Machine Co., New York.

Bay State Machine Co., Erie, Pa.

Birmingham Iron Foundry, Derby, Ct.

Boomer & Boschert Press Co., Syracuse, N. Y.

Edred W. Clark, Hartford, Ct.

Farrel Foundry & Mach. Co., Ansonia, Ct.

William R. Thropp, Trenton, N. J.

Pumps.

Alton Machine Co., New York.

Birmingham Iron Foundry, Derby, Ct.

Boomer & Boschert Press Co., Syracuse, N. Y.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Racks for Boot and Shoe Cars.

Hoggsan & Pettis Mfg. Co., New Haven.

Reducing Valves.

Mason Regulator Co., Boston.

Rollers (Hand).

Hoggsan & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.

Alton Machine Co., New York.

New England Butt Co., Providence, R. I.

Separators.

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Separators for Reclaimed Rubber.

American Process Co., New York.

Special Rubber Machinery.

Alton Machine Co., New York.

Wellman Sole Cutting Machine Co., Medford, Mass.

Spreaders.

Alton Machine Co., New York.

American Tool & Machine Co., Boston.

Birmingham Iron Foundry, Derby, Ct.

New England Butt Co., Providence, R. I.

Steam Traps and Specialties.

Jenkins Bros., New York.

Mason Regulator Co., Boston.

Osgood Sayen, Philadelphia, Pa.

Steel Stamps.

Hoggsan & Pettis Mfg. Co., New Haven.

Stitchers (Hand).

Hoggsan & Pettis Mfg. Co., New Haven.

Strip Covering Machines.

Alton Machine Co., New York.

New England Butt Co., Providence, R. I.

Strip Cutters.

Alton Machine Co., New York.

Bay State Machine Co., Erie, Pa.

Tire Molds.

Alton Machine Co., New York.

A. Adamson, Akron, O.

Alton Machine Co., New York.

Bay State Machine Co., Erie, Pa.

Edred W. Clark, Hartford, Ct.

John Royle & Sons, Paterson, N. J.

Vacuum Drying Chambers.

Alton Machine Co., New York.

Joseph P. Devine, Buffalo, N. Y.

Varnishing Machines.

Birmingham Iron Foundry, Derby, Ct.

Vulcanizers.

Alton Machine Co., New York.

Birmingham Iron Foundry, Derby, Ct.

Farrel Foundry & Mach. Co., Ansonia, Ct.

William R. Thropp, Trenton, N. J.

Washers.

Alton Machine Co., New York.

Birmingham Iron Foundry, Derby, Ct.

Farrel Foundry & Mach. Co., Ansonia, Ct.

William R. Thropp, Trenton, N. J.

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Insulating Machines.

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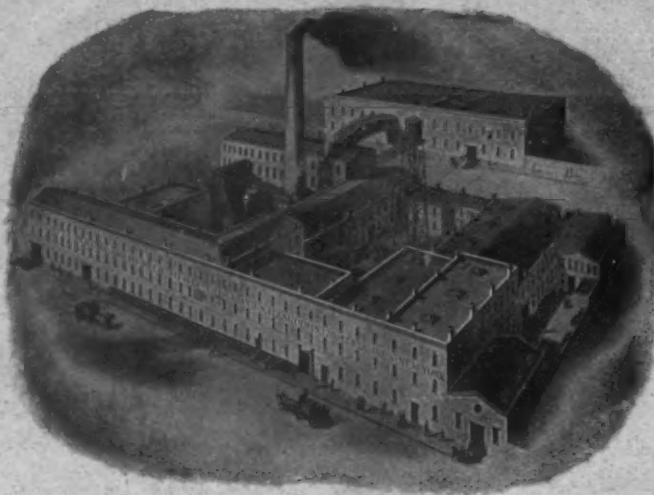
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